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ABSTRACT

Designed to assist bilingual teachers in providing a coordinated program of studies for students in the Connecticut Migratory Children's Program and others whose native language is Spanish, this bilingual-bicultural mathematics curriculum guide for third grade is one of a series for preschool through fifth grade. The overall focus is on Puerto Rican history and culture, placing development of skills within the context of the experience and social identity of the child. A sequential approach is utilized. The guide contains eight units, related to those in the other third grade guides: Connecticut, Puerto Rico, Latin America, Europe, Asia, Eskimos, American Indians, and Africa. Appropriate skills are presented in each unit; for example, the skills in the Asia unit are: regrouping once in addition and in subtraction; identifying value of U.S. coins, combining coins, and computing their sum; making change for \$1.00; writing money using dollar sign and decimal notation; applying money skills in a Japanese American Market Day. Key vocabulary words are listed with each skill. Activities to motivate students to learn each new skill are described. The illustrations provided can be copied for instructional use. Much of the material is given in Spanish and English. (MH)

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INTRODUCTION

Mathematics Bilingual-Bicultural Curriculum for Grade Three is one of a series of curriculum guides. When the series has been completed, it is conceived that there will be guides for pre-school through grade five in the areas of social studies, language arts, science and mathematics. The purpose of these guides is to assist teachers in their efforts to provide a coordinated program of studies for students in the Connecticut Migratory Children's Program. These guides are oriented toward the needs of students whose native language is Spanish and whose families have migrated from Puerto Rico. This is the background of most students in the Connecticut Migratory Children's Program. In utilizing this guide it is important to be aware of the philosophical and instructional assumptions which were central to its development.

First, although the guides contain skills which are commonly considered appropriate to specific grade levels, it has never been assumed that there is a single norm of achievement for all children at a given grade level. There should always be an effort to discover the skill level at which a child is functioning, to choose materials from curriculum guides at that skill level, and to move on to more difficult materials only when the child is ready. This is especially true for students who have had their schooling interrupted and disrupted by a migratory experience. The purpose of suggesting skills at given grade levels is simply to provide a logical sequence of skill development. Teachers must be sensitive to differences between children.

Second, social studies and culturally related ideas are used as a theme base in all guides. The entire series of curriculum guides use Puerto Rican history and culture as a point of departure, progressing from the familiar to the unknown. Placing the development of language arts, science and mathematics within the context of the experience and social identity of the child contributes to the child's building of a positive image of himself, thus enhancing his motivation to learn.

Third, the instructional program should make every attempt not to confuse children through the simultaneous use of two languages. Nevertheless, a major effort should be made to provide common points of reference for instruction in Spanish and English. Instructional methodology should be designed so as to have the English learning program "keyed" to the teaching that takes place in Spanish. The concepts and vocabulary taught in English should, whenever possible, be closely related to concepts and vocabulary which have already been learned in Spanish. In this way, new materials which are introduced in English will have solid conceptual structures which have already been established in the learner's native language.

It may be important for teachers who are using this curriculum guide to understand how the guide was developed. First, a sequence of skills which are important for a child to learn at the given grade level were identified. Content subject matter appropriate for the social experience and interests of the children was then identified. This subject matter became the basis for establishing the eight organizational units of this guide. The skills were divided and placed for presentation under the eight content units. Each skill is listed inside a box located at the upper left corner of each skill page. Key vocabulary words are listed at the right of each skill so that the students can be introduced to the new vocabulary that will be encountered in the activities. After each skill one or more activities are listed which should result in motivating a child to learn the new skill. Many illustrations are provided throughout the guide which can be copied and utilized during instruction.

CREDITS

This curriculum guide has been prepared by the Curriculum Development Project of the Connecticut Migratory Children's Program, which is supervised by the Connecticut State Department of Education. The preparation of this guide has been accomplished by a variety of people, including the following:

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(1979)

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SKILL A: Reviewing basic geometric shapes.

VOCABULARY:

circle
triangle
square
rectangle

"círculo"
"triángulo"
"cuadrado"
"rectángulo"

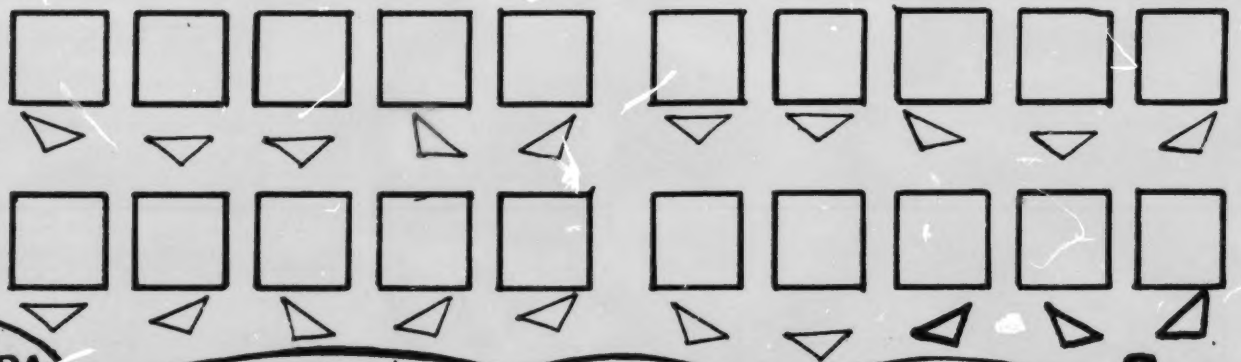
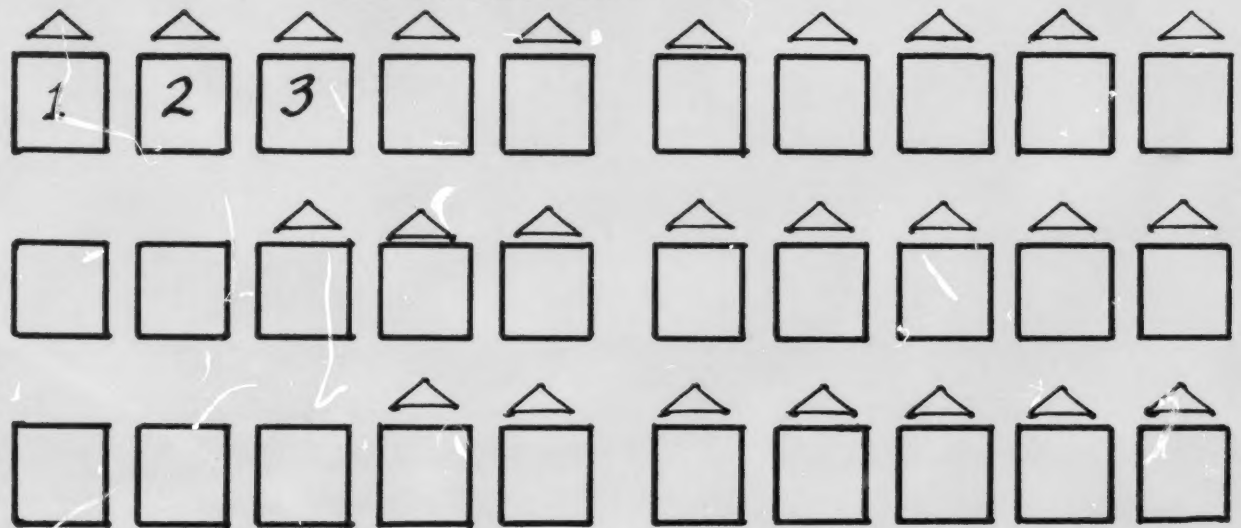
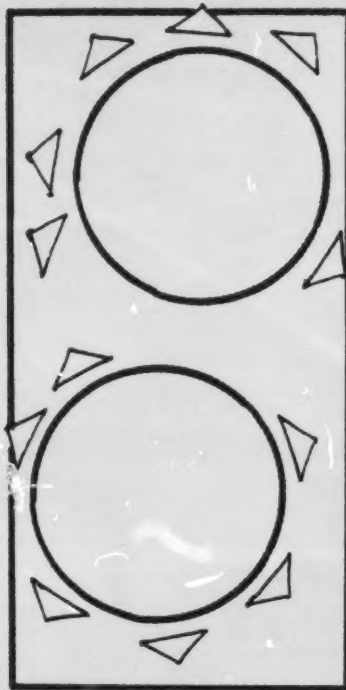
FIRST
ACTIVITY
FOR
SKILL A

Make copies of the drawing below. Giving each child a copy, instruct them to color each shape a different color.

INSTRUCCIONES:

1. Colorea los círculos rojos.
2. Colorea los cuadrados azules.
3. Colorea los triángulos amarillos.
4. Colorea los rectángulos verdes.

FIRST ACTIVITY FOR SKILL A



MAPA
del
SALÓN

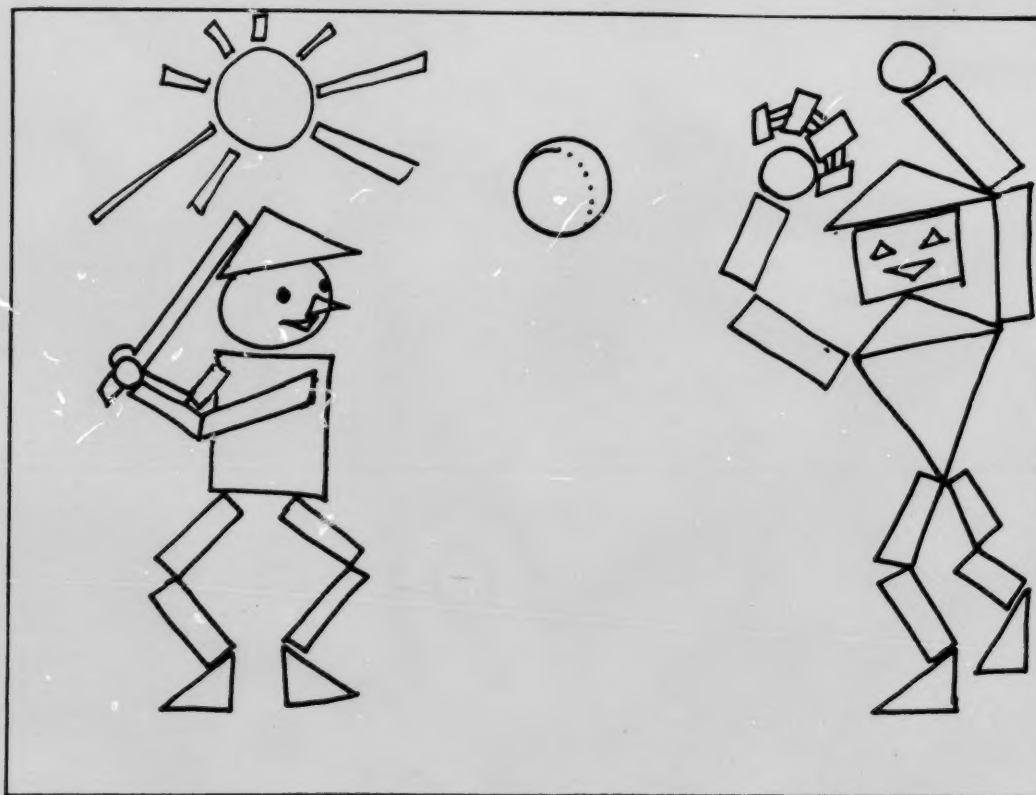
Clave: ○ círculos ~
mesas
□ rectángulos ~
alfombras

△ triángulos ~ sillas
□ cuadrados ~ escritorios

3

SECOND
ACTIVITY
FOR
SKILL A

Have the students draw a picture of their own using only circles, triangles, squares and rectangles. (Allow the students complete creativity.)



SKILL B: Counting one to fifty.
Reading and writing the
numerals 1 to 50.

VOCABULARY:	Numbers one to fifty	"Números uno al cincuenta"
	key	"clave"
	chairs	"sillas"
	tables	"mesas"
	desks	"escritorios"
	rugs	"alfombras"

FIRST
ACTIVITY
FOR
SKILL B

Make an overhead transparency of the classroom map. Discuss the key of the "Classroom Map" with the students so that all of them understand what each shape stands for.
(REFER TO SKILL A, FIRST ACTIVITY.)

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT I: CONNECTICUT

FIRST
ACTIVITY
FOR
SKILL B
(CONTINUED)

Using the transparency, count with students the different items in the classroom in various ways, for example:

¿Cuántas mesas hay en la alfombra grande?

¿Cuántas sillas hay en la primera fila?

¿Cuántos escritorios hay por todo?

Giving the students another copy of the "Classroom Map," the children will count the desks by writing the numbers inside of them.

The following written exercise is suggested to summarize Skill B. Students are to record how many of each item there is in the map.

_____ mesas

_____ alfombras

_____ sillas en la primera fila

_____ sillas alrededor de las mesas

_____ sillas sin mesa o escritorio

_____ escritorios sin sillas

_____ escritorios por todo

NOTE: 655052142

Si has usado todos estos numeros en tus respuestas, lo mas seguro es que estás bien.

SKILL C: Using and interpreting = and $\neq$.

equal
not equal

"igual"
"no es igual"

FIRST
ACTIVITY
FOR
SKILL C

The same copy of the "Classroom Map" can be used with the following written exercise to review the symbols = (equal) and $\neq$ (not equal).

IGUAL = ó NO ES IGUAL $\neq$

I. Utilizando el mapa del salón,
escribe el símbolo de igual (=)
ó no es igual ($\neq$) en las
siguientes relaciones.

EJEMPLO: $\triangle$ sin $\square$ $\neq$ $\square$ de la primera fila.

EJERCICIOS:

1. $\square$ sin $\triangle$ $\square$ $\bigcirc$
2. $\square$ $\square$ $\triangle$ de la última fila.
3. $\triangle$ sin $\bigcirc$ ni $\square$ $\square$ $\triangle$ alrededor de una $\bigcirc$.
4. $\triangle$ de una $\bigcirc$ $\square$ $\triangle$ de otra $\bigcirc$.
5. $\bigcirc$ en $\square$ $\square$ $\bigcirc$ fuera de la $\square$.
6. $\triangle$ de la primera fila $\square$ $\triangle$ de la última fila.
7. $\square$ pequeñas $\square$ grandes.
8. $\square$ por todo $\square$ $\triangle$ alrededor de las $\bigcirc$.
9. $\triangle$ alrededor mesas $\square$ $\triangle$ de los $\square$.
10. $\square$ $\square$ $\bigcirc$.

II Usa el símbolo = ó $\neq$.

1. 7 $\square$ 14
2. 18 $\square$ 28
3. 15 $\square$ 37
4. 25 $\square$ 25
5. 26 $\square$ 16
6. 46 $\square$ 28
7. 32 $\square$ 23
8. 49 $\square$ 49
9. 10 $\square$ 37
10. 5 $\square$ 5

SKILL D: Using and interpreting
 $<$ (less than) and $>$
 (greater than).

VOCABULARY: less than "menor que"
 greater than "mayor que"
 numerals "numerales"

FIRST
 ACTIVITY
 FOR
 SKILL D

Read and familiarize yourself with the story of "Oakey." (See below)

Make a cutout of Oakey and use it as you tell the story to the students.

After finishing, ask the following questions;

1. ¿Qué números se comía siempre Oakey?
2. Si los números _____ y _____ atacaban, ¿cuál se comería Oakey?

11	25
21	12
32	17
45	46
50	43

FIRST
ACTIVITY
FOR
SKILL D
(CONTINUED)



Using the cutout and pairs of numbers (1-50) written on the chalkboard have Oakey change directions according to the highest number.

Any one of the following activities can be done:

1. Oakey, Flannel Board Game.

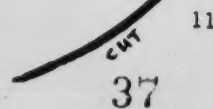
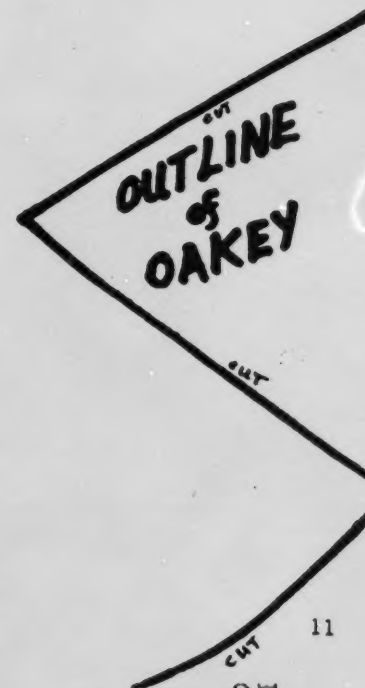
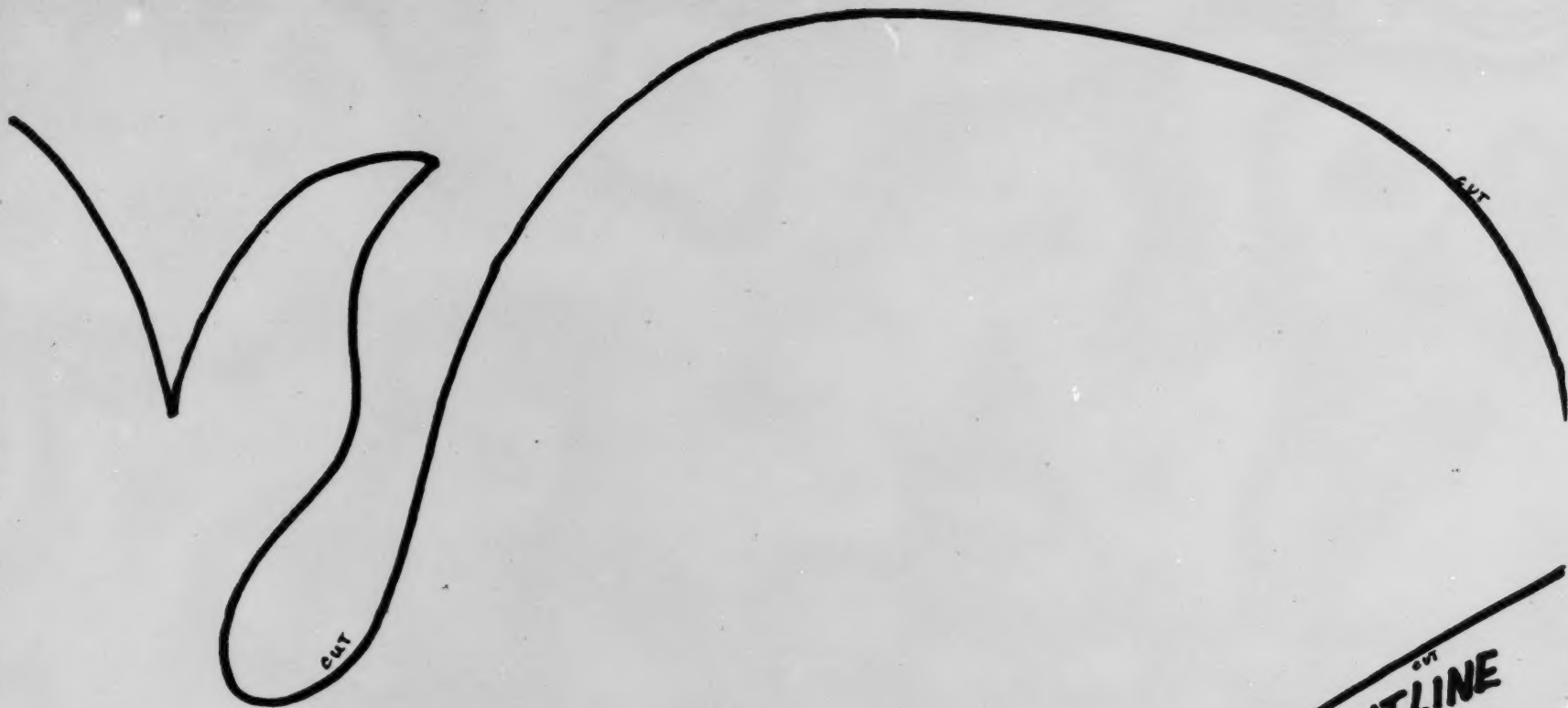
MATERIALS:

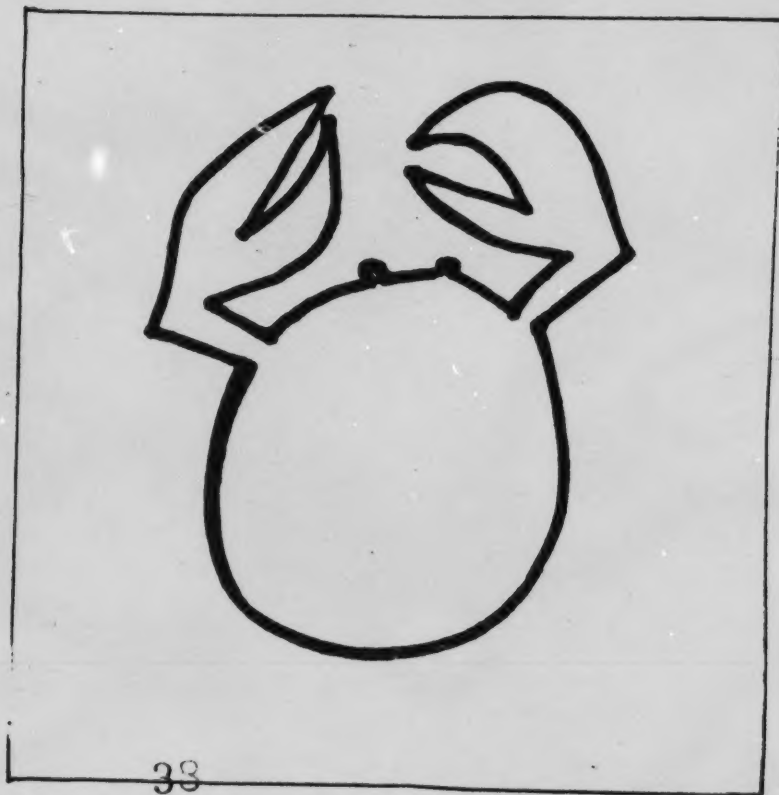
1 cutout of Oakey with flannel pasted on both sides.

numbers 0-50 on crab-like creature cards with flannel on the back.

flannel board.

Two can play. First child picks two numbers at random and places them on the flannel board. The other child is challenged to put Oakey in the correct position showing which number she would eat. If Oakey is properly positioned that child earns one point. The children exchange roles until all numbers are used. Score is kept until the end.





*Suggested crab-like
creature for number-army.*

2. Written exercise: Ditto sheet with pairs of numbers: Draw Oakey eating the greater number.

¿Qué número se comería Oakey? Dibuja la boca primero.

3

9

29

17

Explain that Oakey's mouth has the shape of the symbol used in Math to show the concepts greater than ($<$) and less than ($>$).

mayor que ($<$) y menor que ($>$).

Rule of thumb: Oakey always eats the greater number.

Oakey, the Whale

This is a story about a very special whale that lives at the Mystic Aquarium. Okinitoo, Oakey for short, can do many fantastic tricks. She can jump high in the air, do a reverse belly flop and even give her trainer a kiss. But she is a very finicky whale because she will not even flip her tail unless her trainer shows her two fish with number tags on them. When this is done she will perform wonders that leave children gasping.

But there is a mystery about Oakey. Can you help us solve it. The mystery is that she will never eat both numbered fish, which are tossed to her after her tricks.

If fish number 4 and 8 were tossed she would only eat number 8. If fish number 25 and 20 were tossed she would eat 25. If fish number 50 and 48 were tossed she would eat 50.

Juancho, the trainer, explained why Oakey was so fond of numbers. Oakey came from a far away place deep in the Pacific Ocean named Simabotelomática which in our language is nothing else but "Paradise of Math Symbols."

While living there, Oakey was in charge of defending Paradise against the evil Numeral Army. This army always carried an identifying number and attacked in pairs.

Oakey discovered that if she ate the biggest number of the pair the other would swim away in fright. By doing this she got rid of the whole army single-handed and saved Paradise from being destroyed.

While swimming and playing in the Pacific Ocean she was captured and now shows us her tricks at the Mystic Marinelife Aquarium.

Oakey, la ballena

Esta es en historia de una ballena muy especial que se encuentra en el acuario de Mystic en Connecticut. Su nombre es Okinitoo pero le dicen Oakey por que es más corto. Oakey puede hacer cosas fantásticas como saltar fuera del agua, nadar con la barriga al aire y hasta darle un beso a su entrenador. Pero ella es muy rara, porque no se mueve para nadie a menos que le enseñen dos peces con números. Cuando su entrenador hace esto entonces Oakey se luce con sus trucos y deja a todos boquiabiertos.

¿Nos quieren ayudar a averiguar por qué Oakey es así? Es un misterio puesto que al tirarle ambos peces al final del truco solo se come uno de ellos.

Si un pez tiene el número 4 y el otro pez tiene el número 8 solo se come el pez con el número 8. Si le tiran 25 y 20, solo se come el pez con el número 25. Si los peces tienen los números 48 y 50, entonces se come el pez con el número 50 y deja el otro pez tranquilo.

Juancho, el entrenador nos explicó porque a Oakey le gustan tanto los números. Ella vino de muy lejos de lo más profundo del Océano Pacífico; de un sitio llamado "Simabolelomatica" a sea Paraíso de símbolos de matemática.

Viviendo en Simabolelomatica, Oakey estaba encargada de defender el paraíso del ejército de Números Malignos. Siempre aparecían en pares y con números que los identificaban.

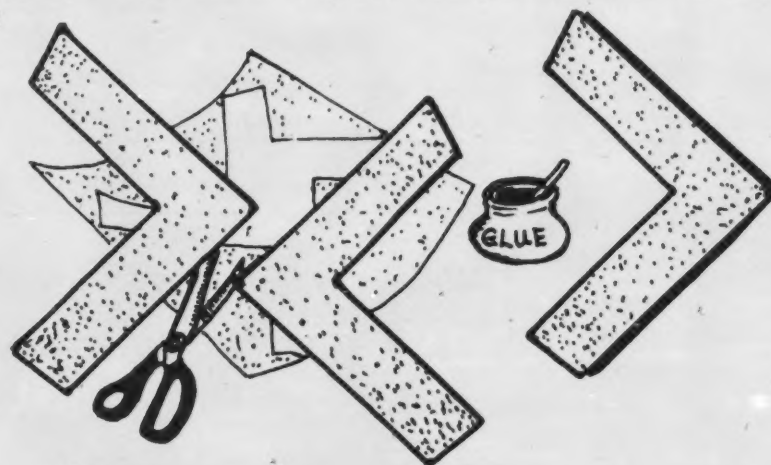
Oakey descubrió que si se comía el número mayor de cada pareja el otro se iba nadando asustado y no atacaba. Haciendo esto, ella sola pudo librarse del Ejército de Números Malignos y así salvar el paraíso.

Nadando y jugando en el Océano Pacífico fue capturada y ahora nos enseña sus trucos en el Acuario de Mystic.

SECOND
ACTIVITY
FOR
SKILL D

Materials needed for second stage of the Oakey Flannel Board Game.

1. Complete set of Numeral Army.
2. Cut same size symbols for $>$ and $<$ out of sand paper and glue them together back to back so that either side can stick to the flannel board.



The Oakey Flannel Board Game will be played as in the first activity for Skill D, with the following modifications:

- a. Use sand paper symbols instead of Oakey.
- b. There will be an additional point earned if after the symbol has been correctly placed the student can also read the mathematical statements correctly.

$3 < 5$ "tres es menor que cinco."
 $5 > 3$ "cinco es mayor que tres."

THIRD
ACTIVITY
FOR
SKILL D

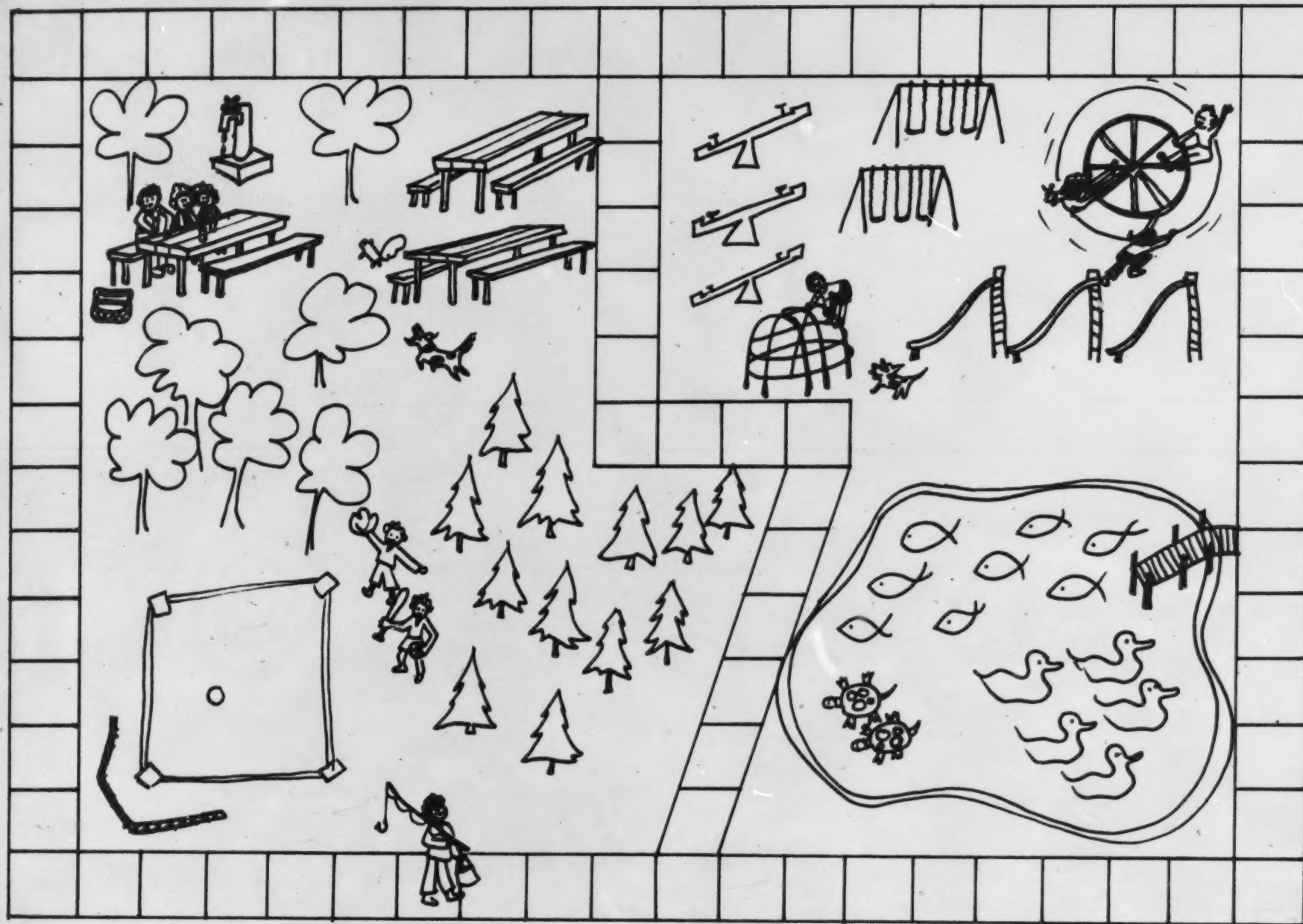
Suggested written exercises for practicing $>$ or $<$.

Escribe $>$ (mayor que), $<$ (menor que) o $=$, para cada par de números.

- | | | |
|-----------------------|--------------------|--------------------|
| 1. 4 <u> </u> 6 | 9 <u> </u> 9 | 15 <u> </u> 16 |
| 2. 17 <u> </u> 17 | 21 <u> </u> 25 | 24 <u> </u> 42 |
| 3. 32 <u> </u> 23 | 35 <u> </u> 35 | 36 <u> </u> 37 |
| 4. 30 <u> </u> 50 | 42 <u> </u> 24 | 43 <u> </u> 43 |
| 5. 34 <u> </u> 43 | 39 <u> </u> 41 | 50 <u> </u> 48 |

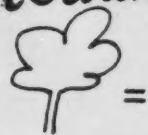
FOURTH
ACTIVITY
FOR
SKILL D

The following worksheet should be completed by the students after discussing in detail the map of the park.



~ En el parque ~

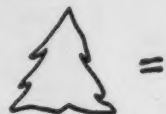
A. Cuántos hay?



=



=



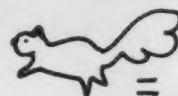
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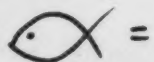
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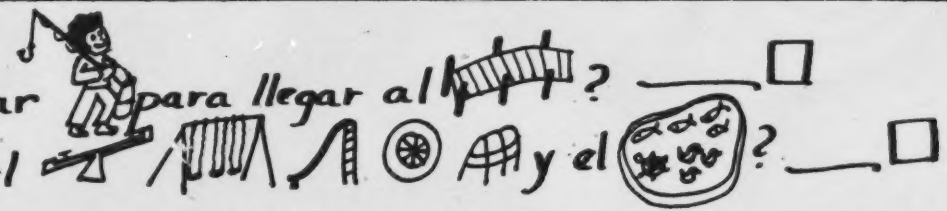
C. Contesta.

1. ¿Cuántos   por todo? _____

2. ¿Cuántos ☐ tiene que caminar _____

3. ¿Cuántos ☐ hay alrededor del _____

4. ¿Cuántos ☐ hay alrededor del área de jira? _____ ☐



MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT I: CONNECTICUT

SKILL E: Measuring using inches (1-50).

VOCABULARY:

unit of measure
inch
graph/chart

"unidad de medida"
"pulgada"
"gráfica"

FIRST
ACTIVITY
FOR
SKILL E

To review unit of measure and standard unit of measure concepts the following activity is suggested:

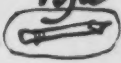
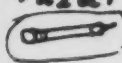
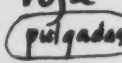
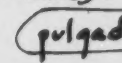
Provide the following materials to the students:

- a. a pencil or pencil stub (varying lengths preferred)
- b. 7" x 1" strip of paper (same color)
- c. 18" x 1" strip of paper (same color)

Using their pencil as their unit of measure the students will measure the length of each strip to the nearest pencil length.

Record the measurements on the chalkboard and discuss why (1) even though the strips are the same size their measurements are different and (2) the need for a standard unit of measure. Give each child a ruler and show them an inch. Using this as their standard unit of measure, re-measure the strips. Record on the chalkboard. Explain symbol for inch, compare and discuss these measurements.

FIRST
ACTIVITY
FOR
SKILL E
(CONTINUED)

	<i>franja roja</i> 	<i>franja azul</i> 	<i>franja roja</i> <i>pulgadas</i> 	<i>franja azul</i> <i>pulgadas</i> 
<i>Marisol</i>	2	5	7"	18"
<i>René</i>	4	10	7"	18"
<i>Federico</i>	2	5	7"	18"
<i>Mireya</i>	3	7	7"	18"

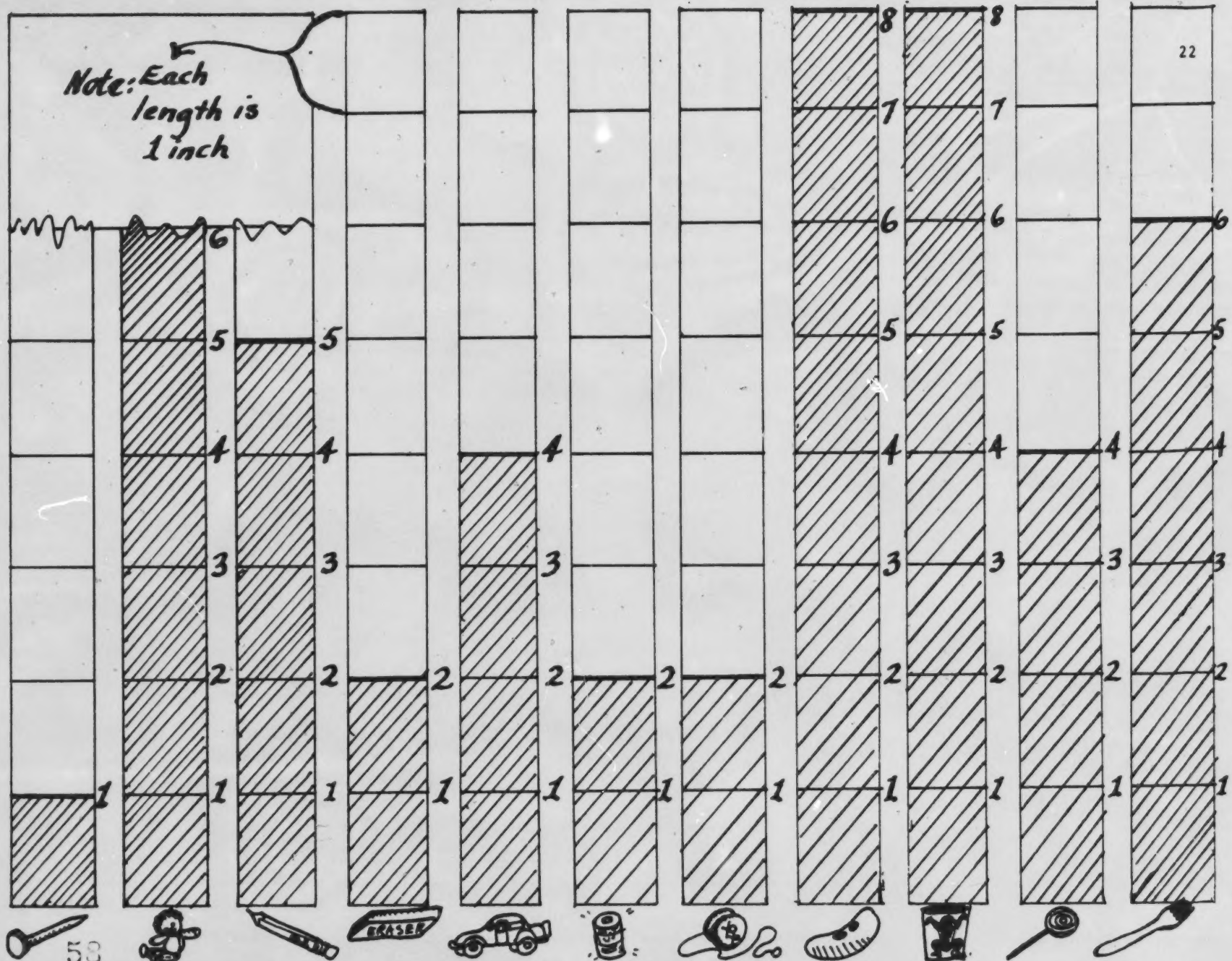
SECOND
ACTIVITY
FOR
SKILL E

Prepare a "Cosas para medir" box, including several of the following items:

nail, doll, pencil, eraser, toy car, battery, yo-yo, lollipop,
piece of bubble gum, crayon, piece of chalk, chalkboard eraser,
fork, spoon, table knife, long candy, comic book, small musical
instruments, etc.

Prepare the following recording chart on a 24" x 36" piece of paper. (This chart
will take the form of a bar graph.)

Note: Each
length is
1 inch



58

59

SECOND
ACTIVITY
FOR
SKILL E
(CONTINUED)

With the chart facing the students, explain that they will:

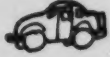
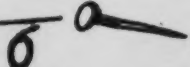
1. measure the items on the box;
2. look for the picture of that item on the chart;
3. record the length by shading in the appropriate number of inches.

As the children come up to record on the chart, the teacher will check their measurements and have them color in the bar. (During the activity, help children discover that small items are best measured with inches.

Using the chart and the information on it, encourage comparisons of lengths of the items using the symbols =, $\neq$, $>$, $<$.

This may be an oral exercise later followed by a written exercise. The following is an example of how the written exercise might appear.

Escribe $>$, $<$, $=$

1.   _____
2.   _____
3.   _____

1. paleta _____ batería
2. lápiz _____ tenedor
3. carro _____ clavo

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT I: CONNECTICUT

SKILL F: Measuring and using feet and inches.

VOCABULARY: feet "pies"

FIRST
ACTIVITY
FOR
SKILL F

Read the Thomas Hooker story to the children. Discuss and try to answer the question at the end of the story. Story could also be acted out with the teacher acting the part of Thomas Hooker.

Como Thomas Hooker usó sus pies

Thomas Hooker fue un hombre muy famoso en la historia de Connecticut. El fundó la colonia de Connecticut allá para los tiempos de los peregrinos. Luego Connecticut se convirtió en uno de los primeros 13 estados de los Estados Unidos.

Cuando Thomas Hooker llegó al sitio donde está Hartford ahora decidió construir una iglesia. Tenía en mente como la quería hacer pero no tenía con qué medir.

Pensó y pensó y por fin decidió usar sus propios pies para medir las distancias de cada pared.

La pared del Este la hizo de 50 pies y la pared del Sur le hizo de 30 pies. Cuando iba a hacer las otras dos paredes hubo un ataque de indios y Thomas Hooker quedó herido. Mientras se reponía, su amigo Benjamín continuó la construcción de la iglesia siguiendo las instrucciones de Thomas al pie de la letra; 50 pies la pared del Oeste y 30 pies la pared del Norte. Benjamín midió con sus propios pies y terminó las paredes notando que algo había quedado mal. Cuando Thomas Hooker fue a ver cómo había quedado, solo pudo ponerse las manos en la cabeza y decir. Padre mio, ¿qué es esto?

Así fue cómo quedaron las paredes de la iglesia. ¿Puedes averiguar porque quedaron mal?

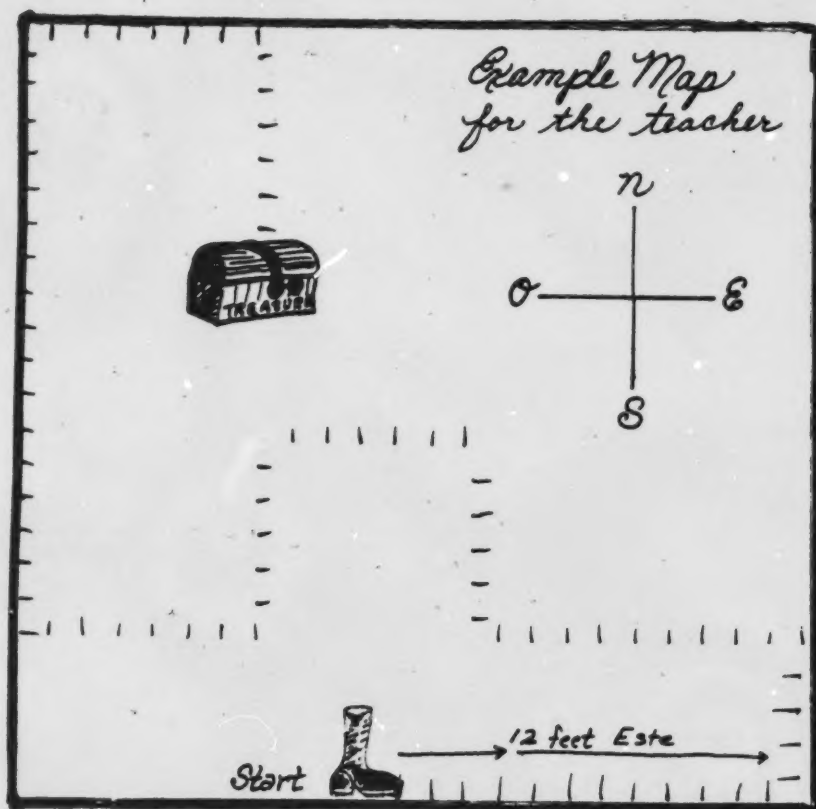
MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT I: CONNECTICUT

SECOND
ACTIVITY
FOR
SKILL F

Play with the students. The Charter Oak was a very famous tree in Connecticut's history used for hiding the colony's royal charter from Sir Edmund Andros, representative of King James III.

This game can be played either indoors or outdoors. The goal of the game is to try to find the treasure (which may be candy). The teacher will hide the treasure and prepare a route of changing directions (N,S,E,W) using a foot ruler to describe the distance in each direction. The destination would be the treasure.

Direcciones para
encontrar el tesoro

*Sigue estas direcciones y
encontrarás el tesoro
escondido.*

12 pies Este
4 pies Norte
10 pies Oeste
5 pies Norte
6 pies Oeste
5 pies Sur
7 pies Oeste
18 pies Norte
7 pies Este
6 pies Sur

¡El Tesoro es tuyo!

SECOND
ACTIVITY
FOR
SKILL F
(CONTINUED)

On the basis of the route, the teacher can prepare direction cards for the students.
See sample direction card.



First students will follow the directions using their own foot. An important rule will be that students may go no further than the directions tell them.

Measure one foot after another.

While playing the game, the students will discover that each one ends up at a different place.

Next, call students together and discuss why they did not find the treasure. Then, present and examine several 12 inch rulers. Help children observe that 12 inches together equals another standard unit of measure - the foot.

Then, together reread and follow the directions, measuring the distances using the foot rulers until the treasure is found.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT I: CONNECTICUT

THIRD
ACTIVITY
FOR
SKILL F

Demonstrate how to measure the height of a student. Using feet and inches help students arrive at an accurate measurement. Show them how to read and write that measurement on the blackboard, for example:

Rafael mide 5 pies con 9 pulgadas.

Make sure that students understand that they should use as many of the larger units of measure as possible (feet) before using the smaller units of measure (inch).

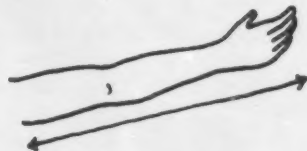
In small groups have the children measure one another allowing them to write correctly their height on the chalkboard.

FOURTH ACTIVITY FOR SKILL F

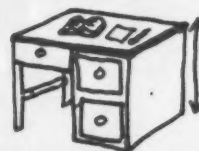
Mide lo siguiente y escribe la medida correcta en pies y pulgadas.

PIES y PULGADAS

Ejemplo: El largo del brazo mide 2 pies 4 pulgadas.



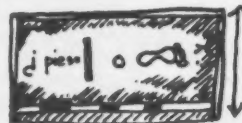
El ancho de la puerta mide
— pies — pulgadas.



Del escritorio al piso mide
— pies — pulgadas.



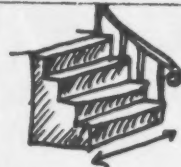
El ancho de una ventana mide
— pies — pulgadas.



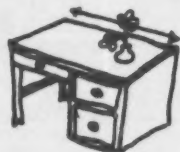
La altura de la pizarra
mide — pies — pulgadas.



La altura del maestro mide
— pies — pulgadas.



El ancho de un escalón
mide — pies — pulgadas.



El ancho del escritorio mide
— pies — pulgadas.



El largo de un libro grande
mide — pies — pulgadas.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT I: CONNECTICUT

SKILL G: Measuring using yards, feet and inches.

VOCABULARY: yards "yardas"

FIRST
ACTIVITY
FOR
SKILL G

Have the children join three 12 inch rulers and then present a yard by laying a yardstick next to the joined rulers. Discuss how the 3 feet compare with the yard.

Showing the students a measurement of an inch, a measurement of a foot, and a measurement of a yard, ask them which they would use to measure most quickly the distance from one corner of the room to the other. (The yard is the quickest because it is the largest standard unit of measure.) Discuss that yards are used to measure long distances.

Measure with the students different distances in the classroom using yards, feet and inches. Write the measurements on the chalkboard.

EXAMPLE:

Width of chalkboard is 5 yards 2 feet 6 inches.

SECOND
ACTIVITY
FOR
SKILL G

Distribute the following worksheet to the students. Remind students to measure as many yards as possible first before measuring feet and then inches.

YARDAS, PIES, y PULGADAS

Mide lo siguiente y escribe la medida correcta en yardas, pies y pulgadas.



Ejemplo: El ancho de la pizarra mide 5 yardas, 2 pies, 6 pulgadas.



La altura de la puerta

mide _____ yardas _____ pies _____ pulgadas.

La distancia desde la puerta del salón hasta el baño mide

_____ yardas _____ pies _____ pulgadas.



El ancho del pasillo

mide _____ yardas _____ pies _____ pulgadas.



Una pared de la escuela mide

_____ yardas _____ pies _____ pulgadas



El largo de un carro

mide _____ yardas
_____ pies
_____ pulgadas.



El ancho de la entrada principal de la escuela mide

_____ yardas
_____ pies
_____ pulgadas.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT I: CONNECTICUT

SKILL H: Measuring and using centimeters (cm) and meters (m).

VOCABULARY:

Metric Measurement
centimeter
meter

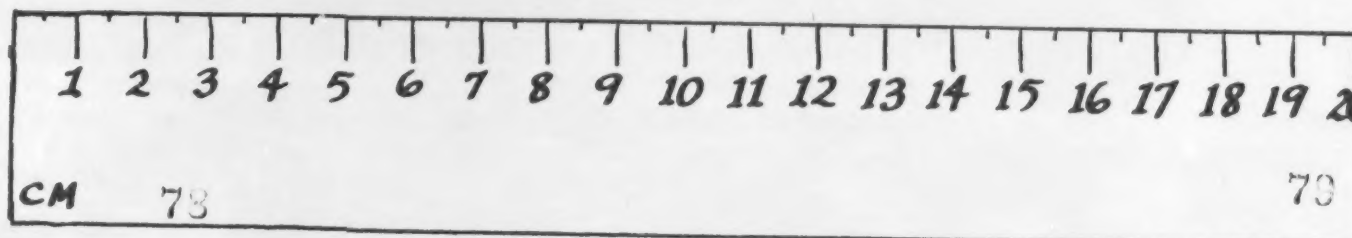
"Medida Métrica"
"centímetro"
"metro"

FIRST
ACTIVITY
FOR
SKILL H

Read the story of "Maya nos enseña sobre la métrica" to the students. The story and the instructions for making puppets of Maya and Trozo and a map can be found on the following pages.

Show the children the length of a centimeter and a meter. Discuss that 100 centimeters equals 1 meter. Teach the abbreviations for a centimeter=cm and meter=m. Write centimeter on the chalkboard. Have them study the word underlining centi. Ask them what Spanish word is similar. Eventually they should say cien, which means hundred. Their knowledge of the word "cien" should help them remember that there are 100 centimeters in 1 meter.

Supply each child with a square centimeter  and a 3 cm x 20 cm strip of oaktag. Have the students measure off centimeters  on the oaktag strip so they each end up with a 20 cm.



FIRST ACTIVITY FOR SKILL H (CONTINUED)

Maya nos enseña sobre la métrica

Trozo, el oso, había vivido toda su vida en Connecticut. Se conocía el estado de Connecticut de rabo o cabo. Los animales amigos de él, siempre le mencionaban las maravillas que habían visto cada año en el sur y este hizo que Trozo se sintiera muy curioso. Decidió emprender camino hacia Sur América para satisfacer su curiosidad.

Maya era una llama que había vivido toda su vida en las montañas de Perú. Las aves amigas de Trozo también eran amigas de Maya y le habían hablado sobre las vistas preciosas de América del Norte. También Maya sintió curiosidad y decidió verlo todo con sus propios ojos.

A mitad de camino y cerca de un pueblito llamado Laredo, encontraron ambos un pozo de agua fresca para calmar su sed.

Trozo: (Juega en el agua.)

Maya: (Observando a Trozo.) ¿Qué haces?

Trozo: Tengo tanto calor que juego en el agua. (Mira a Maya) Pero, ¿qué clase de animal eres tu?

Maya: Soy una llama y vengo desde Perú para ver con mis propios ojos las vistas preciosas de América del Norte.

Trozo: Yo vengo desde Connecticut para ver las maravillas de Sur América.

Maya: He caminado tantos kilómetros que creo haber perdido como 15 kilos.

Trozo: Esas dos palabras que usaste, no las entiendo. ¿Qué son kilómetros y kilos?

Maya: Pues son la distancia que he caminado y el peso que he perdido.

Trozo: No entiendo eso porque en Estados Unidos se caminan millas y se pesan libras.

Maya: ¡Que locos son ustedes! ¿No saben que casi todo el mundo usa nuestra forma de medir, que es la métrica?

FIRST ACTIVITY FOR SKILL H (CONTINUED)

Trozo: ¿De verdad? ¡Huy, entonces nosotros sí que estamos atrasados! Pero, ¿la forma inglesa, no es más fácil?

Maya: O no, la forma métrica es tan fácil que cualquiera la aprende en un dos por tres.

Trozo: Enséñame a mí para poder entenderlo mejor y no tener problemas cuando visite tu país.

Maya: Lo ~~mas~~ importante que tienes que saber si quieres visitar América del Sur son, estas dos medidas:

el centímetro que es así (enseña con los dedos) y
el metro que solo son 100 centímetros juntos.

Trozo: El centímetro ..., el metro ..., el centímetro ..., el metro ..., ¿Por qué es tan importante saber esto primero y no lo de kilómetro y kilo?

Maya: Porque cuando vayas a quedarte en los hoteles de animales te van a preguntar en centímetros de que tamaño necesitas la cama, la cuchara, el tenedor y el cuchillo.

Trozo: ¡Pero, yo no se eso!

Maya: Vamos a medirte para que sepas. (Saca una cinta y mide a Trozo.)
49 centímetros de alto.

Trozo: ¡Entonces necesito una cama de por lo menos 50 centímetros!

Maya: Tu mano mide 10 centímetros.

Trozo: ¡Necesito entonces los utensilios de la misma medida!

¿Puedes prestarme esa cinta de medir por si la necesito para alguna otra cosa?

Maya: Sí, te la puedo prestar, pero mejor yo te acompaño para poder enseñarte todo lo otro sobre métrica.

Trozo: Nunca pensé que además de ver maravillas iba a aprender algo totalmente nuevo.

(Se van juntos.)



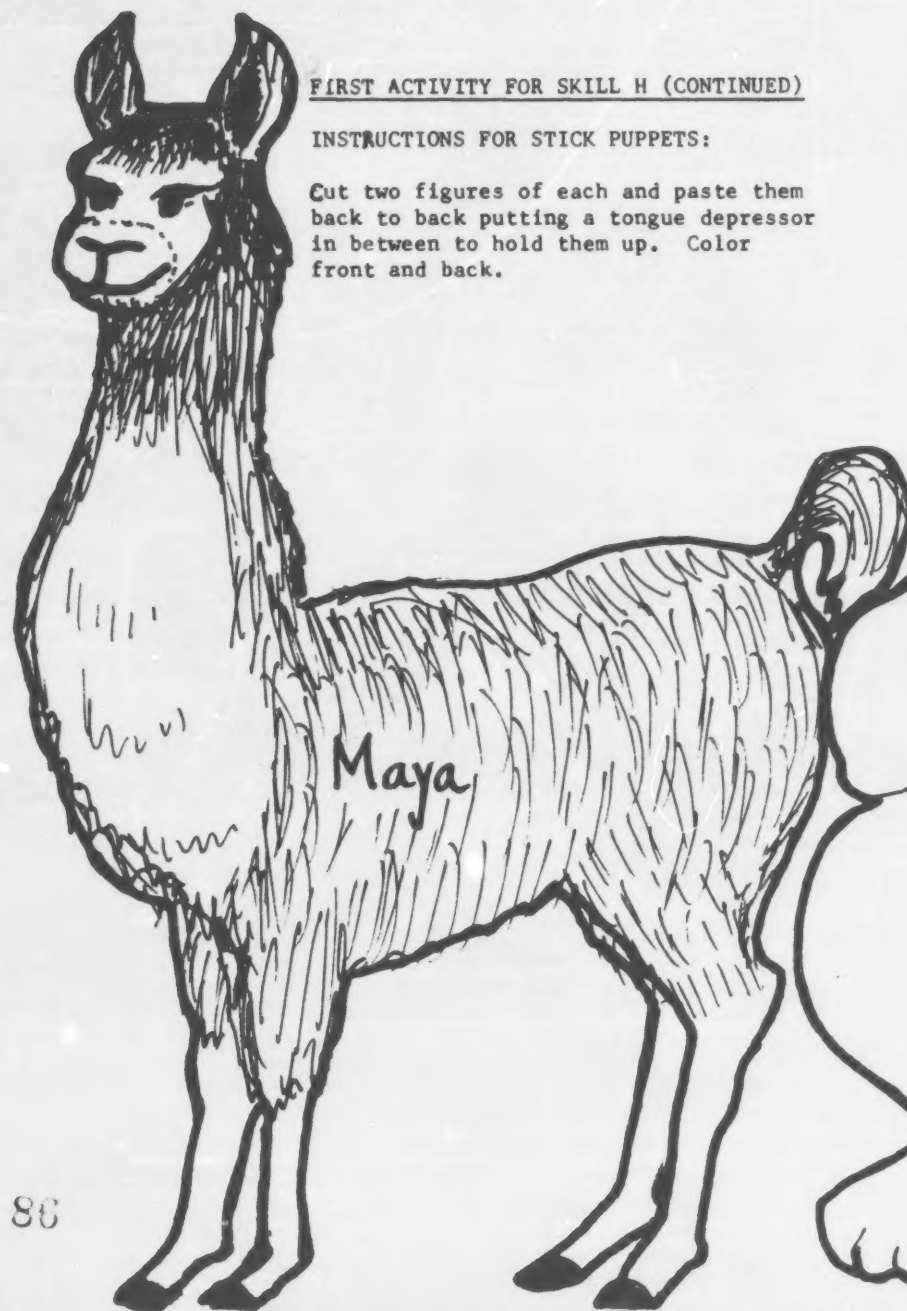
*Maya nos enseña
sobre la métrica*

FIRST ACTIVITY FOR SKILL H (CONTINUED)

FIRST ACTIVITY FOR SKILL H (CONTINUED)

INSTRUCTIONS FOR STICK PUPPETS:

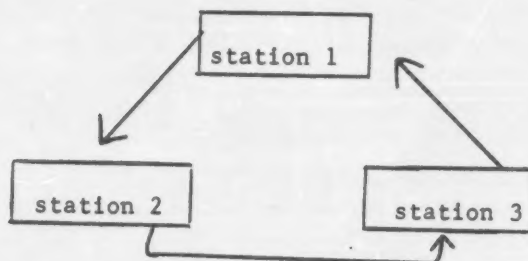
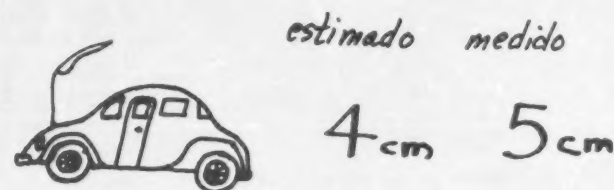
Cut two figures of each and paste them back to back putting a tongue depressor in between to hold them up. Color front and back.



SECOND
ACTIVITY
FOR
SKILL H

Using the 20 cm strip, the teacher and students should together measure items from the "Cosas para medir Box" used in the Second Activity for Skill E. Record as before.

Before measuring, the students should estimate the length in centimeters to practice estimating skills. As an example:



Next, the teacher should prepare several measuring stations with items the students can measure. Students will rotate from one station to another until all items are measured and recorded. (See the following suggested Recording Sheet.)

At one station have several meter sticks and several long things or measuring activities that can best be measured with a meter stick, for example: a rope, a chalkboard, length and width of the classroom, distance to the bathroom, etc.

During the activity, discuss with the students three things:

1. Long things are best measured using meters.
2. Short things are best measured using centimeters.
3. If it is necessary to measure something using meters and centimeters, measure as many meters as possible before measuring centimeters.
For example, a rope might measure 3 meters 26 centimeters.

SECOND
ACTIVITY
FOR
SKILL H
(CONTINUED)

Recording Sheet for Measuring Stations:

Estima la medida y luego mide en cm. o Metros los artículos que encuentres en cada estación.

Estación 1

Artículo	Estimación en cm.	Medida correcta en cm.
1.	_____ cm.	_____ cm.
2.	_____ cm.	_____ cm.
3.	_____ cm.	_____ cm.
4.	_____ cm.	_____ cm.
5.	_____ cm.	_____ cm.

Estación 2

1.	_____ cm.	_____ cm.
2.	_____ cm.	_____ cm.
3.	_____ cm.	_____ cm.
4.	_____ cm.	_____ cm.
5.	_____ cm.	_____ cm.

Estación 3 (Metros)

1.	_____ M _____ cm	_____ M _____ cm
2.	_____ M _____ cm	_____ M _____ cm
3.	_____ M _____ cm	_____ M _____ cm
4.	_____ M _____ cm	_____ M _____ cm
5.	_____ M _____ cm	_____ M _____ cm

SKILL I: Introduce the concept of scale measurement. Provide an application of scale measurement using maps.

VOCABULARY:	scale measurement	"medida en escala"
	scale drawing	"dibujo a escala"
	mile	"milla"
	nearest inch	"pulgada más cercana"

FIRST
ACTIVITY
FOR
SKILL I

NOTE: These scale measurement activities are done using inches, feet and miles. They could just as easily be done using centimeters (cm) meters (m) and kilometers (km).

1. Introduce the whole concept by planning a walking trip of at least one mile (or 1 kilometer).
2. After returning to the classroom, distribute a piece of drawing paper to the students and ask them to draw the distance they walked. Children will discover that they cannot do it. Tell children that in the coming lessons they are going to learn how to draw on a piece of paper the distance they walked. Ask children how they think this can be done. Also, make sure children understand that the distance they walked was one mile.

If city neighborhood maps were obtained, ask children to estimate the distance from one place in the city to another as more or less than a mile. The teacher can then measure to find the actual distance.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT I: CONNECTICUT

SECOND
ACTIVITY
FOR
SKILL I

1. To further introduce Scale Measure, prepare the following word cards (on 4" x 8" index cards) and place them in a specially marked envelope.

M E D I D A

E N

E S C A L A

E S

Cuando

se

permite

que

una

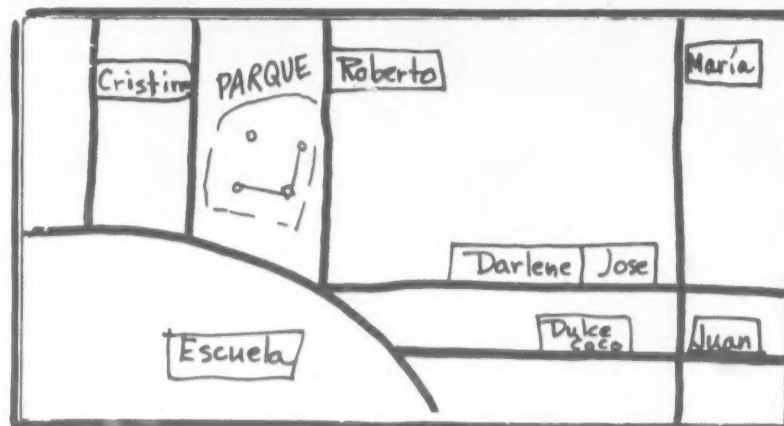
medida

represente

otra

medida

2. Have children tape the word cards on the chalkboard and read them, discussing what they think the phrase, "Medida en escala," means.
3. Next, clear all desks to the sides of the room and make, on the floor, using masking tape, a map of the school neighborhood. Include the streets where the students live. See example below.



SECOND
ACTIVITY
FOR
SKILL I
(CONTINUED)

Tell children that they are going to make some scale measurements. Let 1 inch stand for 1 yard. Have children stand at their houses on the map. Using a ruler, have them measure how many inches they are away from the school, the store and their friends' houses. Encourage them to estimate the distances before actually measuring.

A record of the activity can be kept on the chalkboard or on a worksheet. An example follows.

NOMBRE	Distancia hasta	La escuela	Parque	Casa de Maria	Casa de Juan	Tiendia
Cristina		60 yardas	20 yardas	120 yardas	115 yardas	95 yardas

REMEMBER 1 INCH REPRESENTS 1 YARD

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT I: CONNECTICUT

THIRD
ACTIVITY
FOR
SKILL I

This activity will provide an application of scale measurement using a map of Connecticut.

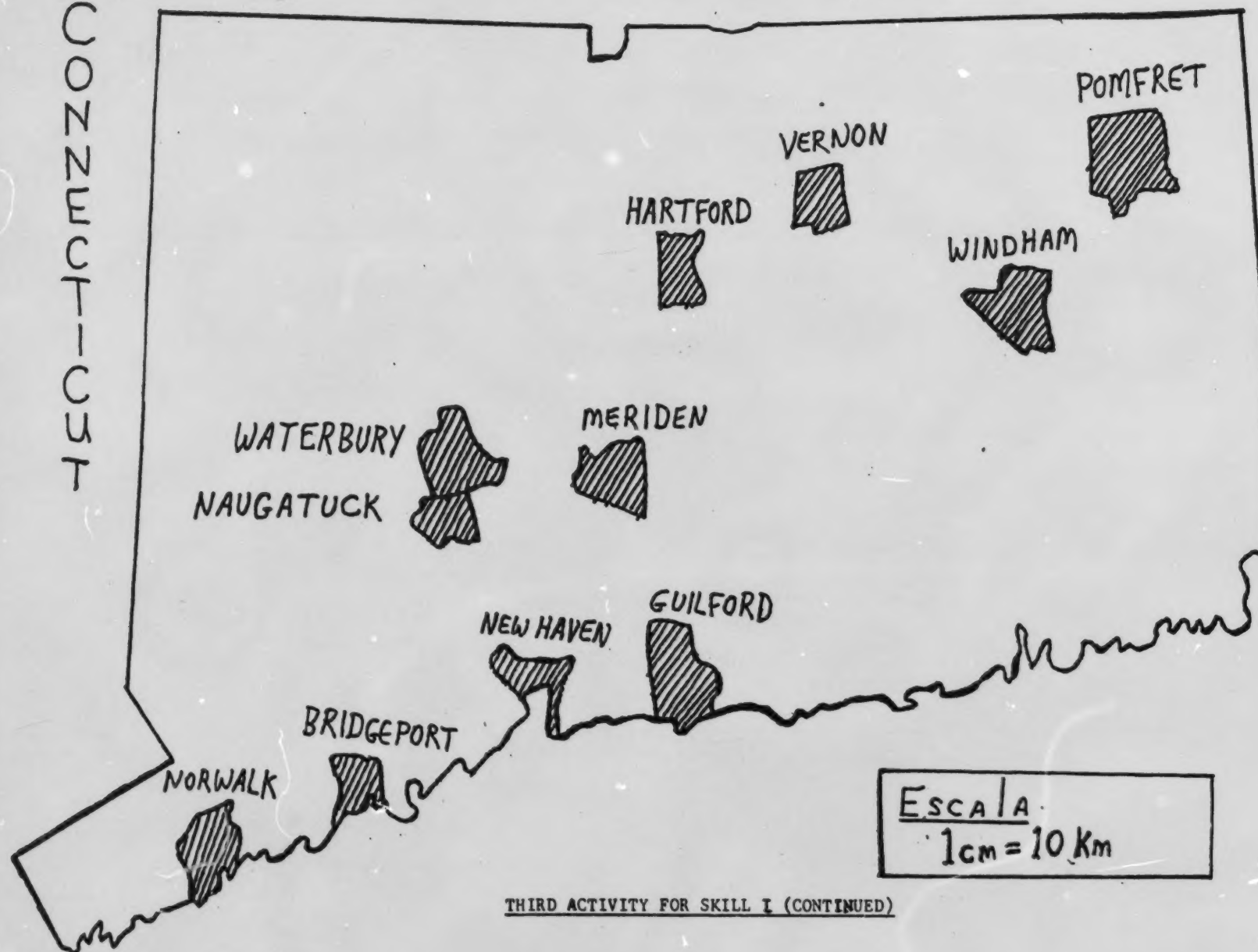
1. Discuss with the students that scale drawings can vary a great degree. In the following exercise the scale will be quite different from the previous exercise.
2. Now, 1-inch will stand for 10 miles. Review discussion of how far a mile is. Distribute to each child with a 12-inch ruler a map of Connecticut and an accompanying worksheet. See examples on the next pages.
3. Note: When doing the following exercise, the towns will not be exactly x number of inches apart. So, have children measure to the nearest inch.

WORKSHEET EXAMPLE

Mide las distancias entre los siguientes pueblos. Escribe las distancias en pulgadas y luego en millas, de acuerdo a la escala del mapa.

1. Desde Waterbury hasta Guilford. _____ cm _____ km
2. Desde Windham hasta Hartford. _____ cm _____ km
3. Desde New Haven hasta Naugatuck. _____ cm _____ km
4. Desde Bridgeport hasta Meriden. _____ cm _____ km
5. Desde Waterbury hasta Pomfret. _____ cm _____ km

UOZZWUOT--05H



MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT I: CONNECTICUT

SKILL J: Ordinal numbers one to ten.

VOCABULARY:

ordinal	"ordinales"
first	"primero"
second	"segundo"
third	"tercero"
fourth	"cuarto"
fifth	"quinto"
sixth	"sexto"
seventh	"séptimo"
eighth	"octavo"
ninth	"novenio"
tenth	"décimo"

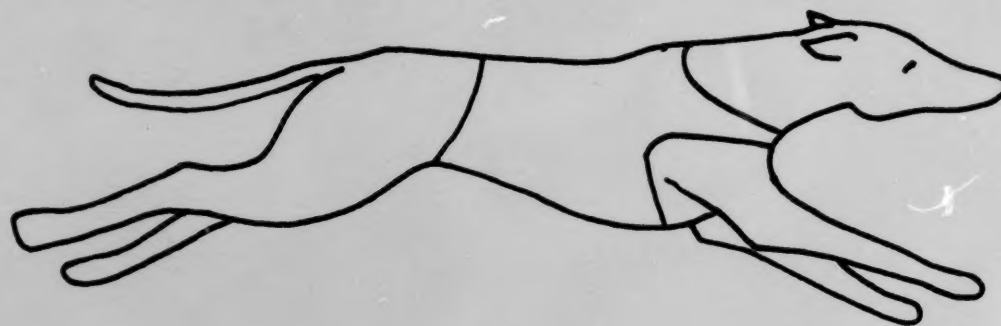
FIRST
ACTIVITY
FOR
SKILL J

Prepare a bulletin board with 10 silhouette figures of greyhounds finishing a race.



Discuss the bulletin board with the students.

FIRST ACTIVITY FOR SKILL J (CONTINUED)



*Model for greyhound racing
(First activity for skill J)*

SECOND
ACTIVITY
FOR
SKILL J

Any of the following activities can be used to understand and use the ordinal numbers correctly.

- A. Cut ten circles in all different sizes. Label each circle after a city or town in Connecticut according to the largest population:

Give out the shapes to different students at random and instruct them to get in order by population. Then make the transition to:

Bridgeport - first
Hartford - second
New Haven - third
Waterbury - fourth
Stamford - fifth
Norwalk - sixth
New Britain - seventh
West Hartford - eighth
Greenwich - ninth
Fairfield - tenth

BRIDGEPORT

HARTFORD

NEW HAVEN

WATERBURY

STAMFORD

FAIRFIELD

GREENWICH

WEST
HARTFORD

NEW
BRITAIN

NORWALK

SECOND
ACTIVITY
FOR
SKILL J
(CONTINUED)

- B. Giving the students an enlarged copy of the following, have them write, in order, the activities they do during the day. Also have them draw a picture of the activity in the space provided.

Primero 1 ^{ro}	Yo me levanto. 	Sexto 6 ^{to}	Yo _____
Segundo 2 ^{do}	Yo _____	Séptimo 7 ^{mo}	Yo _____
Tercero 3 ^{ro}	Yo _____	Octavo 8 ^{vo}	Yo _____
Cuarto 4 ^{to}	Yo _____	Noveno 9 ^{no}	Yo _____
Quinto 5 ^{to}	Yo _____	Décimo 10 ^{mo}	Yo _____

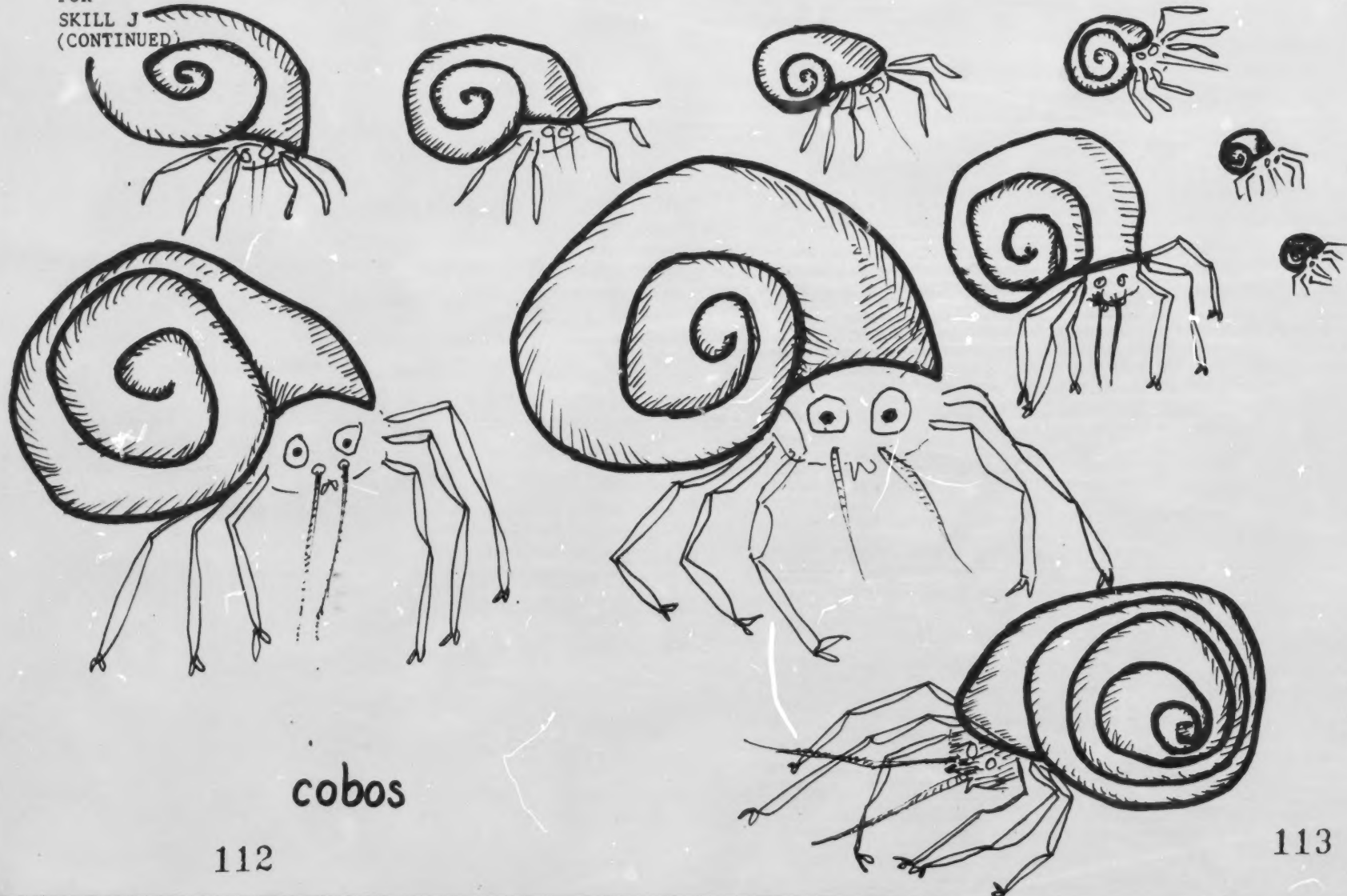
110

When they have written in the activity and made the drawing, the students can cut the paper on the dotted lines and use the pieces as a puzzle to be solved by a friend.

111

SECOND
ACTIVITY
FOR
SKILL J
(CONTINUED)

C. Prepare the drawings of a hermit crab in different growing stages. After putting them in sequence discuss which one goes first, second, third, etc.



- D. Prepare drawings of tobacco growth and harvest typical in Connecticut.
After putting them in sequence, discuss which goes first, second, etc.



Cojibá or "TOBACCO" probably from Taino language. At time of Columbus, Indians of Antilles rolled and smoked leaves called "tobacco".

- SKILL A: Counting, reading and writing the numerals 1 - 100.
- SKILL B: Understanding and using the number line.
- SKILL C: Counting, reading and writing numbers 1 - 100 by 10's.
- SKILL D: Counting, reading and writing numbers 1 - 100 by 5's.
- SKILL E: Recalling addition and subtraction facts to 18.
- SKILL F: Understanding and using the commutative property of addition.
- SKILL G: Understanding and using the associative property of addition.
- SKILL H: Understanding and using column addition with three addends.
- SKILL I: Computing subtraction facts to 18.
- SKILL J: Solving story problems using simple addition or subtraction.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT II: PUERTO RICO

SKILL A: Counting, reading and
writing the numerals
1-100.

VOCABULARY: Numbers 1-100 "Números 1-100"

FIRST
ACTIVITY
FOR
SKILL A

Play Follow the Leader Counting Game. (Sigame a mí)

- Players follow a leader as they count to one hundred. The leader changes ways of walking throughout the game. A rhythm should be established and the numbers are recited to the rhythm. When the goal (100) is reached, all players squat to the floor and remain silent. Any of the following can be used as styles of walking in the game: airplane walk, elephant walk, duck walk, march, tip-toe, chicken walk, monkey walk, swim, hop, etc.
- Playing this game in a circle is suggested.

Also, once the students have mastered the activity counting forwards, it is suggested that the same activity be done, but counting backwards instead.

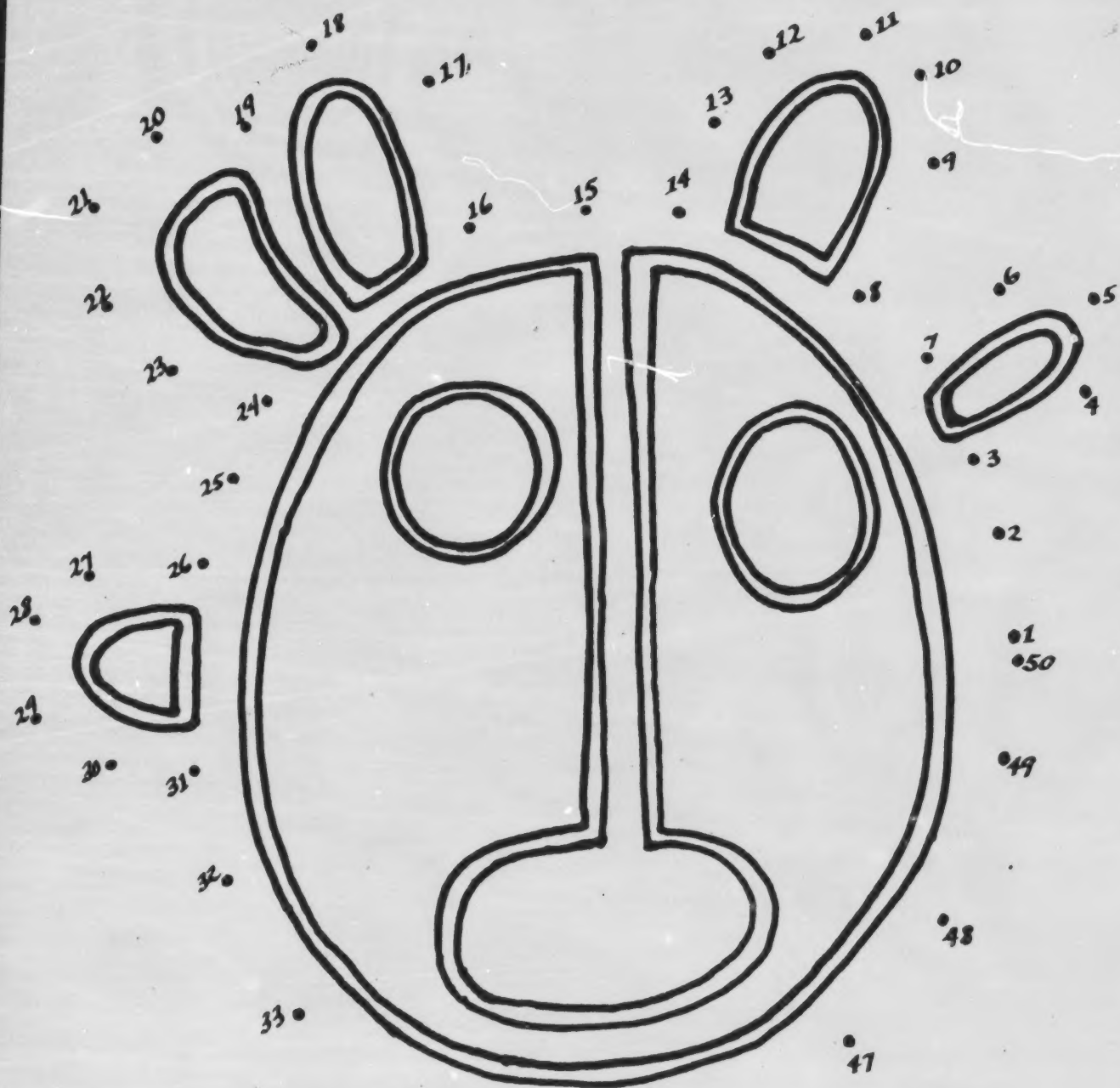
SECOND
ACTIVITY
FOR
SKILL A

Have children bring items from their everyday life with written numbers on them (cereal boxes, cans, newspapers, calendars, containers, recipes, magazines, etc.).

Instruct the children to find and circle single and double digit numerals. Have them read the numbers to one another and/or to their teacher.

This activity can be extended by playing:

- 1) Find My Number Game (Busca mi número) - (small group). One player selects a number from his item that the others have to find. The first player who finds it by looking through the items will go next.
- 2) Make a Sentence - Have the students make up sentences relating to the number on the item with the contents of the item. The sentence does not necessarily have to be true. For example, if a child sees on a label on a can of beans, "Peso neto 16 oz.," the student could make up a sentence saying, "Hay 16 habichuelas dentro esta lata."
- 3) Dot to Dot Taino Indian Design Dittos - To give the students further practice in reading the numerals (in correct sequence), the following dot to dot dittos are suggested. Children may check their papers with the teachers master copy and then finish the activity by coloring the ditto.



Petroglifos de los
indios tainos
(primero)

Direcciones: Une los
puntos de uno (1) a
cincuenta (50).

38.

37.

43

42

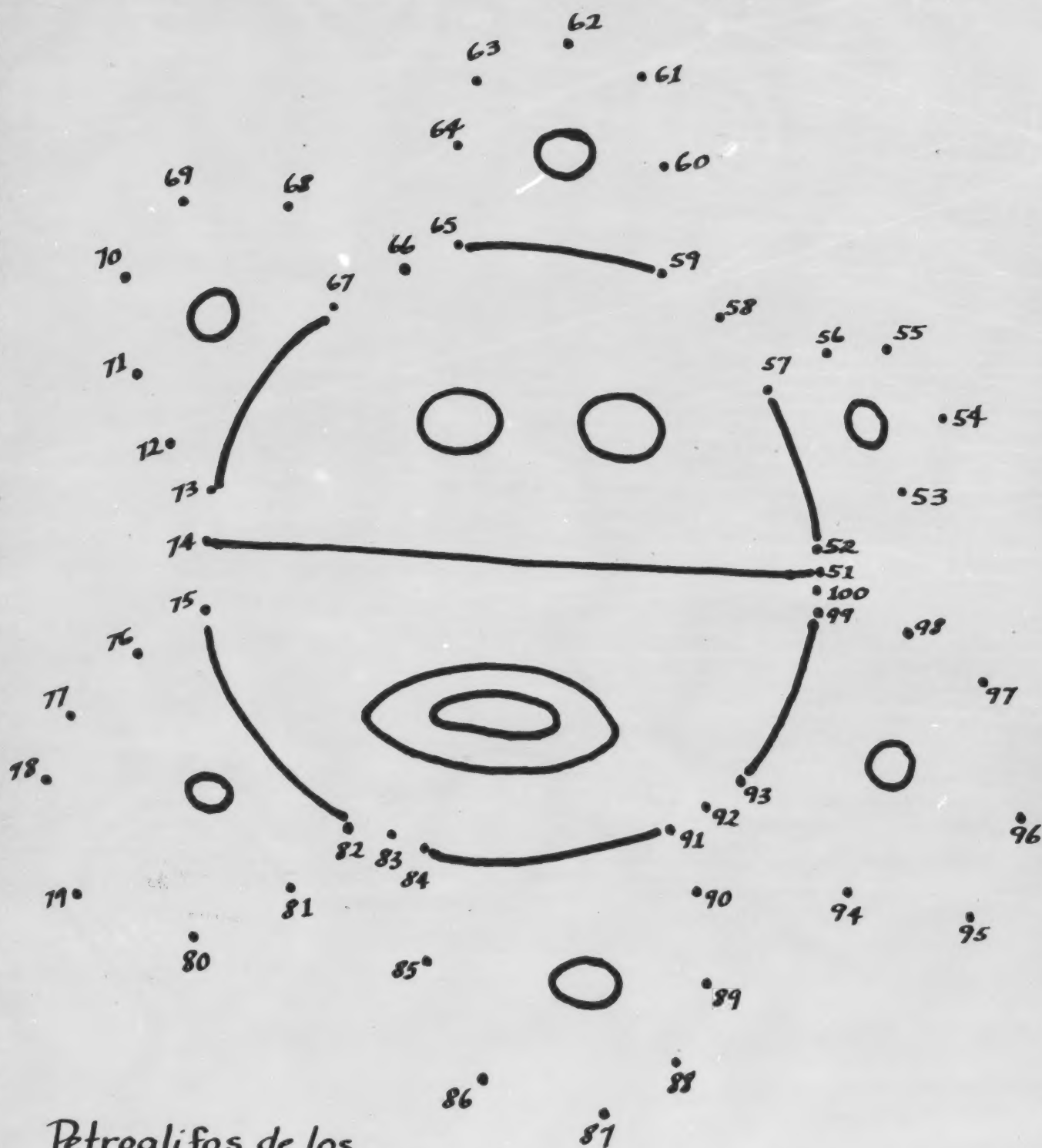
39.

40.

122

41

54



Petroglifos de los
indios tainos
(segundo)

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT II: PUERTO RICO

THIRD
ACTIVITY
FOR
SKILL A

After discussing what mangoes are, the students can count the mangoes in the following picture by writing in the numbers. On the bottom right hand side they will write in how many they found. (There should be 100.)

124

125



MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT II: PUERTO RICO

SKILL B: Understanding and using
the numbers line.

VOCABULARY:	Number line	"Recta numérica"
	Before	"Antes"
	After	"Después"
	In Between	"Entre"

FIRST
ACTIVITY
FOR
SKILL B

- (1) Make a large copy (Bulletin Board Size) of the following character, "Pcpolepe" to assist in teaching the number line concept. An opaque projector can be used to reproduce the drawing.

0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

128

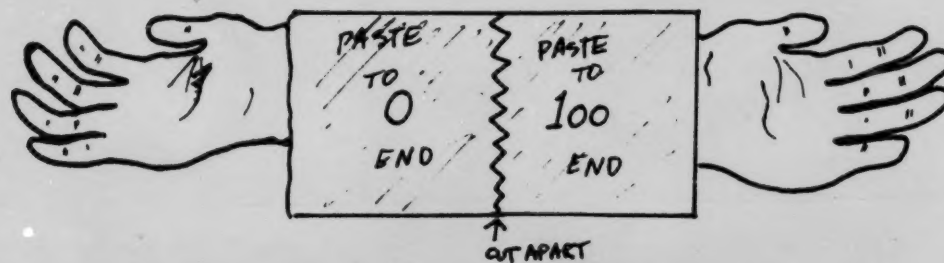
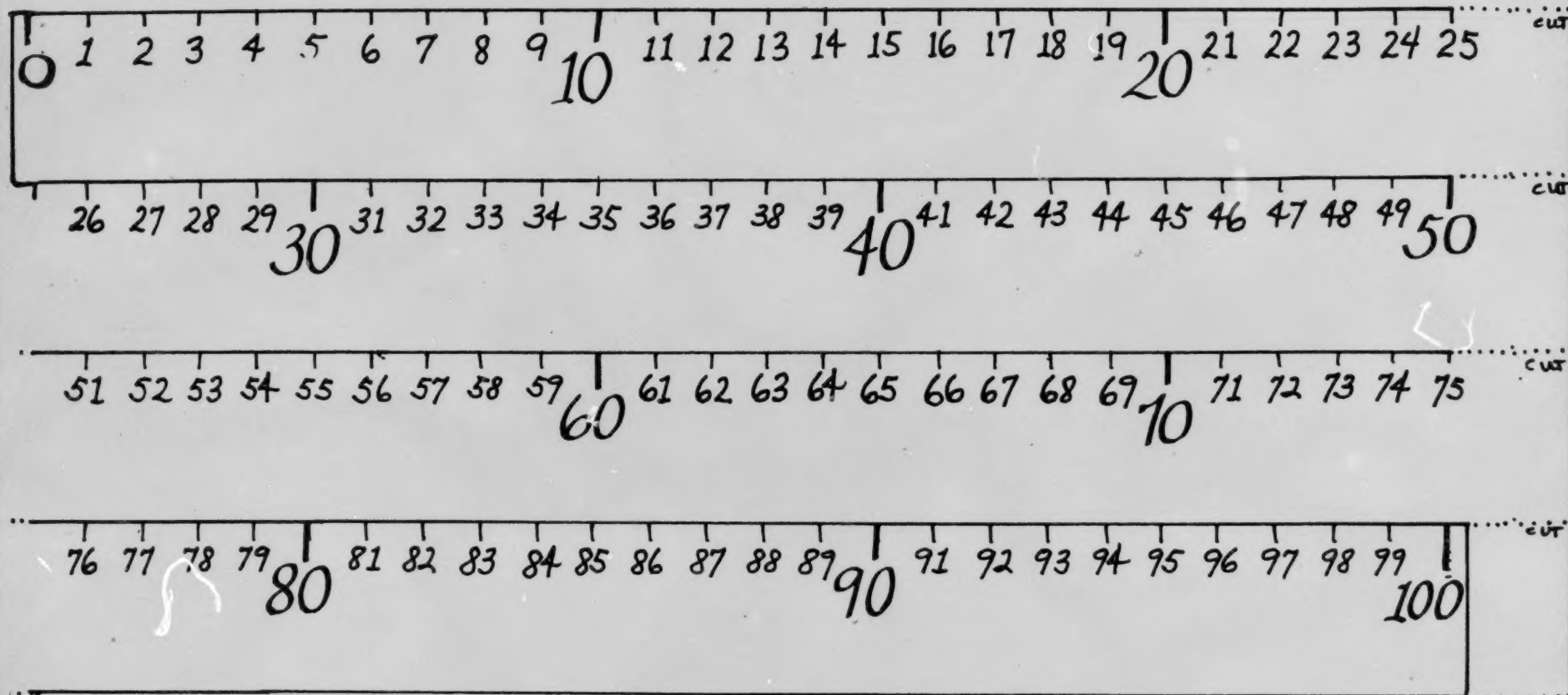
129



POPOLEPE

place number line here

130



CUT OUT AND
ATTACH HANDS TO EITHER
END OF NUMBERLINE

CUT
AND
ATTACH
STRIPS
IN ORDER
AND
PLACE
AS ARMS
FOR
PODDLEPE.

FIRST
ACTIVITY
FOR
SKILL B
(CONTINUED)

- (2) After making the Bulletin Board (colorfully made) the teacher will introduce "Popolepe" as the number clown who is going to help the children think about numbers, saying:

"Popolepe es un muñeco que les va ayudar a entender los números."

- (3) Next the teacher should go over all the numbers 1-100, showing the students where the numbers are located on the number line. The teacher should help the students discover that the numbers are bigger the farther you go to the right and vice versa to the left.

- (4) The teacher can then distribute a ditto sheet of "Popolepe," so that each child may have a copy of the number clown. The clown maybe colored and/or the teacher can have the students fill in any numbers that are missing to complete the number line. The quantity of missing numbers is up to the teacher's discretion.

SECOND
ACTIVITY
FOR
SKILL B

1. Using the Popolepe bulletin board display, the teacher can review and drill number line concepts such as: before, after and between, by having Popolepe ask some of the following questions.

- a. enséñame el número _____.
- b. enséñame el número que está antes que _____.
- c. enséñame el número que está después que _____.
- d. enséñame el número que está entre _____ y _____.

- a. ¿Qué número es este? (As the teacher points.)
- b. ¿Qué número esta antes que _____?
- c. ¿Qué número esta después que _____?
- d. ¿Qué número esta entre _____ y _____?

SECOND
ACTIVITY
FOR
SKILL B
(CONTINUED)

2. This oral activity should be followed by a written exercise in which the same type of questions are asked.

A. ¿Qué número va antes?

_____ 16	_____ 25
_____ 49	_____ 91

B. ¿Qué número va después?

26, _____	62, _____
31, _____	87, _____

C. ¿Qué número va entre medio?

21, _____, 23	76, _____, 78
49, _____, 51	98, _____, 100

THIRD
ACTIVITY
FOR
SKILL B

Play the game, "Fuápiti." The goal of the game is to guess the number a fellow student or teacher is thinking. This game reinforces the following skills:

1. Knowledge of the number line sequence.
2. Less than, greater than skills.
3. Deductive thinking skills.

The game is played in the following manner. Player 1 thinks of a number between 1-100. Player 2 guesses. Player 1 responds by saying greater than or less than. The dialogue continues until Player 2 guesses (or deduces) the number. When the number is guessed, Player 1 responds saying: F U Á P I T I.

Fuapiti Dialogue Example

First player: (thinks of the #62.)

Second player: 50

First player: mayor que

Second player: 70

First player: menor que

Second player: 60

First player: mayor que

Second player: 64

First player: menor que

Second player: 62

First player: F U Á P I T I

Note: This game can be played throughout the year, adapting it to the level the children are at.

SKILL C: Counting, reading and writing numbers 1-100 by tens.

VOCABULARY:	ten	"diez"
	twenty	"veinte"
	thirty	"treinte"
	forty	"cuarenta"
	fifty	"cincuenta"
	sixty	"sesenta"
	seventy	"setenta"
	eighty	"ochenta"
	ninety	"noventa"
	one hundred	"cien"

**FIRST
ACTIVITY
FOR
SKILL C**

Have children jump rope to the following rhyme:

"Saltemos a la cuerda
Cuidado con los pies
y ahora vamos todos
a contar de diez en diez;
10, 20, 30, 40, 50, 60, 70, 80, 90, 100."

Whoever can jump throughout the whole rhyme without missing is a winner.

Once the students have mastered this, they can count backwards to the following rhyme:

"Saltemos a la cuerda,
contando de 10 en 10,
y ahora vamos todos a contarlos al revés,
100, 90, 80, 70, 60, 50, 40, 30, 20, 10."

Petroglifos de los indios tainos

SECOND
ACTIVITY
FOR
SKILL C

Une los puntos de 10 en 10.

DOT TO DOT TAINO INDIAN DESIGN DITTO.



THIRD
ACTIVITY
FOR
SKILL C

Have students complete the following written exercises:

A. Llena los espacios en blanco.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	
21	22	23	24	25	26	27	28	29	
31	32	33	34	35	36	37	38	39	
41	42	43	44	45	46	47	48	49	
51	52	53	54	55	56	57	58	59	
61	62	63	64	65	66	67	68	69	
71	72	73	74	75	76	77	78	79	
81	82	83	84	85	86	87	88	89	
91	92	93	94	95	96	97	98	99	

B. Escribe los números que faltan.

0	1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19		21	22	23	24	25
26	27	28	29		31	32	33	34	35	36	37	38
39		41	42	43	44	45	46	47	48	49		51
52	53	54	55	56	57	58	59		61	62	63	64
65	66	67	68	69		71	72	73	74	75	76	77
78	79		81	82	83	84	85	86	87	88	89	
91	92	93	94	95	96	97	98	99				

THIRD
ACTIVITY
FOR
SKILL C
(CONTINUED)

C. Coloca en orden.

20 - 30 - 0 - 70 - 90 - 60 - 10 - 50 - 80 - 100 - 40

____, ____, ____, ____, ____, ____, ____, ____, ____, ____, ____

D. ¿Qué falta?

0, 10, ____, 30, ____, 50, ____, 70, ____, 90, ____.

____, 20, ____, 40, ____, 60, ____, 80, ____, 100.

____, ____, 40, 50, 60, ____, ____, ____, ____.

60, ____, ____, ____, 100.

50, ____, 70, ____, 90, ____.

SKILL D: Counting, reading and writing the numerals 1-100 by 5's.

**FIRST
ACTIVITY
FOR
SKILL D**

Have the children jump rope to the following rhyme:

100 cotorritas, van de 5 en 5.
Vamos a contarlas, 5 en cada brinco.
5, 10, 15, 20, 25, 30, 35, 40, etc. . .

Whoever can jump throughout the whole rhyme without missing is a winner.

Once the students have mastered this, they can count backwards to the following rhyme.

Si te crees que esto es fácil
trata otra vez
vamos a contarlos
ahora al nevés.
100, 95, 90, 85, 80, 75, etc. . .

Both rhymes can be combined into one single activity for those students who are ready for the challenge.

(Bouncing a ball can be substituted for jumping.)

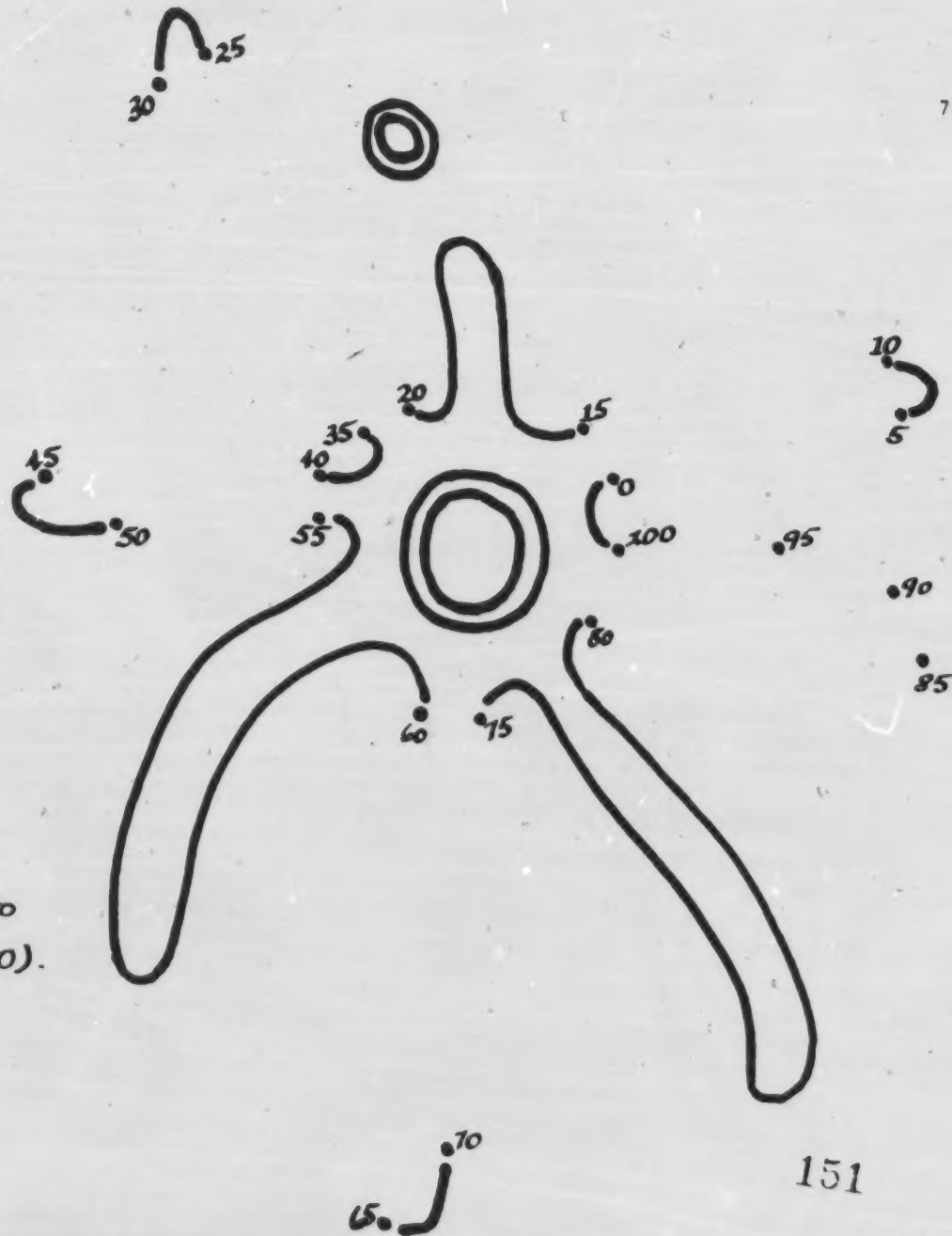
SECOND ACTIVITY FOR SKILL D

Dot to Dot Taino Indian Design Ditto.
This dot to dot design is suggested to
practice reading by 5's.

*Petroglifos
de los
indios tainos*

Direcciones:

*Cuenta de cinco
encinco uniendo los punto
del zero (0) hasta cien (100).*



THIRD
ACTIVITY
FOR
SKILL D

To practice writing by 5's, the following written exercises are suggested.

1. Complete the number chart by writing the missing numbers.

2. Llena los espacios en blanco.

Llena los espacios en blanco.

1	2	3	4	5	6	7	8	9	10
11	12	13	14		16	17	18	19	
21	22	23	24		26	27	28	29	
31	32	33	34		36	37	38	39	
41	42	43	44		46	47	48	49	
51	52	53	54		56	57	58	59	
61	62	63	64		66	67	68	69	
71	72	73	74		76	77	78	79	
81	82	83	84		86	87	88	89	
91	92	93	94		96	97	98	99	

1	2	3		5	6	7			10
				15					20
				25					30
				35					40
				45					50
				55					60
				65					70
				75					80
				85					90
				95					100

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT II: PUERTO RICO

THIRD
ACTIVITY
FOR
SKILL D
(CONTINUED)

3. Put the following numbers in order.

Coloca en orden.

25, 35, 5, 15, 20, 45, 30, 10, 40, 50, 0.

____, ____, ____, ____, ____, ____, ____, ____, ____, ____, ____.

4. Write in the missing numbers, counting by 5's.

Escribe los números que faltan, contando cinco en cinco.

0, 5, 10, 15, 20, 25, 30, ____, ____, 45, ____.

55, 60, ____, ____, 75, ____, 85, ____, 95, ____.

25, ____, ____, ____, 45, ____, ____, 60, ____, ____.

75, ____, ____, ____, ____, 100.

____, 35, ____, ____, ____, 55, ____.

____, ____, 50, ____, ____, ____, ____.

5. Write the 5's that come before and after each number.

Escribe los números que vienen antes y después.

20 25 30

____ 5 ____

____ 10 ____

____ 40 ____

____ 55 ____

____ 30 ____

____ 70 ____

____ 85 ____

____ 90 ____

SKILL E: Recalling addition and subtraction facts to 18.

8

VOCABULARY:

sum	"suma"
addend	"sumando"
numeral	"numeral"
difference	"diferencia"
add	"sumar"
subtract	"restar"
vertical	"vertical"
horizontal	"horizontal"
symbol	"símbolo"
minuend	"minuendo"
subtrahend	"sustraendo"

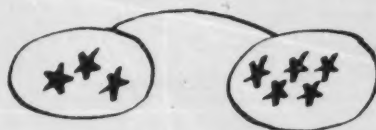
FIRST
ACTIVITY
FOR
SKILL E

Prepare the following Ponce de León Bulletin Board.

SUMA



Yo soy el
signo de
sumar



$$\begin{array}{r} 3 \text{ sumando} \\ + 5 \text{ sumando} \\ \hline \end{array}$$

8 suma

158

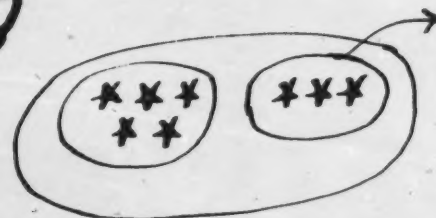
$$\begin{array}{r} \text{sumando} \\ \text{sumando} \\ 3 + 5 = 8 \text{ suma} \end{array}$$

Ponce de León
nos enseña:

RESTA



Yo soy el
signo de
restar



$$\begin{array}{r} 8 \text{ minuendo} \\ - 3 \text{ sustraendo} \\ \hline 5 \text{ diferencia} \end{array}$$

$$\begin{array}{r} 8 \text{ minuendo} \\ - 3 \text{ sustraendo} \\ \hline 5 \text{ diferencia} \end{array}$$

159

+ Acuerdate de mirar el símbolo -

FIRST ACTIVITY FOR SKILL E

FIRST
ACTIVITY
FOR
SKILL E
(CONTINUED)

Explain the bulletin board using the following introductory story of Ponce de León:

Ponce de León fue un explorador muy determinado. No se daba por vencido fácilmente. Su más grande anhelo fue encontrar "La fuente de la Juventud" para poder quedarse joven para siempre. En su búsqueda llegó a un sitio que nunca antes había visto. Era una isla muy cerca de "Simabotelomática." (Paraíso de los símbolos de matemática.) Mientras descansaba bajo una palma de cocos sintió un golpe tan fuerte en la cabeza que quedó atolondrado. Un coco había caído encima. Cuando salió del aturdimiento notó que el coco se había partido en dos y que de cada mitad salía un símbolo diferente.

The teacher can make use of the bulletin board to explain the following concepts and terms.

1. addition symbol (+).
2. addition - joining of two or more sets.
3. addends - numerals which are joined.
4. sum - total of the addends.
5. adding horizontally as being the same to adding vertically.
6. subtraction symbol, (-).
7. subtraction - taking away from a set.
8. difference - what is left after subtracting.
9. subtracting horizontally as being the same as subtracting vertically.
10. compare visual and symbolic differences of the symbols.

1. símbolo de suma.
2. suma - unir dos o más conjuntos.
3. numerales- números que representan cada conjunto.
4. sumandos - numerales que se unen.
5. suma horizontal - suma vertical
6. símbolo de resta, (-).
7. resta - quitarle a un conjunto.
8. diferencia - lo que queda de la resta.
9. resta horizontal - resta vertical.
10. comparar visual y simbólicamente los signos.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT II: PUERTO RICO

SECOND
ACTIVITY
FOR
SKILL E

FACT SHEET SYSTEM FOR DRILLING THE ADDITION-SUBTRACTION FACTS.

(Can also be used for the Multiplication-Division Facts.)

Initially, a lot of work is involved in organizing and setting up this system. But once the Fact Sheets are duplicated, about 10 to 12 minutes daily are required to prepare the Fact Sheets for a class of 28 students.

INTRODUCTION

The Fact Sheet System is a system of daily drill worksheets (called Fact Sheets) and Mastery Tests. The facts are presented and drilled in a very systematic way. Students write the facts over and over again to assist them in memorizing the facts. It is an individualized system so that when a child shows mastery on one fact, he/she passes on to the next fact. A record sheet to help the teacher in charting the process of each student is included in the curriculum.

Basically, the procedure is as follows. Children receive a Fact Sheet every day drilling on a particular fact. One Fact Sheet a day is completed Monday through Thursday. (This is a fine seat work activity that a child can easily complete by himself/herself. On Friday, a timed mastery test is given covering only the facts each child has drilled on that week. If the child attains 100% on the test, he/she is checked off as having mastered that fact or facts and is moved on to the next fact, following the prescribed sequence.

FACT SHEET SYSTEM

I. ORGANIZATION OF THE FACT SHEETS

All of the Addition, Subtraction, Multiplication and Division Facts have been broken down and organized in a sequential learning order and been put on 8" x 11½" Drill Sheets called Fact Sheets. Mastery tests accompanying each Fact Sheet have been made. The facts have been organized from simple to hard. All the sets of facts making up each Fact Sheet along with four example Mastery Tests appear in Appendices A and B at the end of this Curriculum.

The following are Fact Sheet examples:

NOMBRE _____ MAESTRO _____											FECHA _____ GRADO _____										
1	2	3	3	3	4	4	5	5	6	7	TEST										
$\frac{+7}{8}$	$\frac{+6}{8}$	$\frac{+3}{6}$	$\frac{+4}{7}$	$\frac{+5}{8}$	$\frac{+3}{7}$	$\frac{+4}{8}$	$\frac{+2}{7}$	$\frac{+3}{8}$	$\frac{+2}{8}$	$\frac{+1}{8}$											
											13 13 13 13 13 13 13 TEST										
											$\frac{-3}{10}$ $\frac{-4}{9}$ $\frac{-5}{8}$ $\frac{-6}{7}$ $\frac{-7}{6}$ $\frac{-8}{5}$ $\frac{-9}{4}$										
											2 13										
											$\frac{+6}{}$ $\frac{-8}{}$										
											4 13										
											$\frac{+4}{}$ $\frac{-5}{}$										
											5 13										
											$\frac{+3}{}$ $\frac{-6}{}$										

II. RECORD KEEPING

The following record keeping system can be used to keep track of where each child is. Posters can also be made of the same thing so the child sees his/her progress. It can serve as a good motivator.

The form below can be adapted to chart all of the Facts.

FACT SHEET RECORD SHEET										CLASS _____
FACTS BEING RECORDED										
NAME OF STUDENT										MASTERED

The Record Sheet adapted to chart children's progress in the Addition sums up to 10 would appear as below:

FACT SHEET RECORD SHEET		CLASS _____						
<u>Addition Facts-Sums to 10</u> FACTS BEING RECORDED								
NAME OF STUDENT	Sums to 4	5-6	7	8	9	10 pt.1	10 pt.2	MASTERED

The Record Sheet adapted to chart the "Hard Subtraction Facts" would appear as below:

FACT SHEET RECORD SHEET		CLASS _____							
<u>Hard Subtraction Facts</u> FACTS BEING RECORDED									
NAME OF STUDENT	Subtracting From 11	12	13	14	15/16	17/18	20 pt. 1	20 pt. 2	MASTERED

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT II: PUERTO RICO

When a child passes a particular fact, the teacher puts a check ☒ in the box corresponding to that fact. With the use of the record keeping sheets, the teacher knows what fact each child is working on even if all children working on different facts.

FOR EXAMPLE:

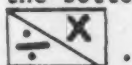
Roberto has been working on the 6's and 7's of the Addition Facts. He has already passed the mastery tests on the 2's, 3's, 4's and 5's, so there is a check ☒ in each of those boxes. (SEE RECORD SHEET FOR ROBERTO.) An unchecked box ☐ signifies a fact that has not been mastered.

Addition Facts, All Combinations FACTS BEING RECORDED										
NAME OF STUDENT	2's	3's	4's	5's	6's	7's	8's	9's	10's	MASTERED
ROBERTO	☒	☒	☒	☒	☐	☐	☐	☐	☐	

Let us say Roberto takes the Friday mastery test on the 6's and 7's and passes the 7's but does not pass the 6's. Then, Roberto's space on the Fact sheet Record Sheet would appear as shown below. The next week, Roberto would work on the Addition Facts 6's and 8's.

Addition Facts, All Combinations FACTS BEING RECORDED										
NAME OF STUDENT	2's	3's	4's	5's	6's	7's	8's	9's	10's	MASTERED
ROBERTO	☒	☒	☒	☒	☐	☒	☐	☐	☐	

The same Record Sheet can be adapted to chart students' progress in the Multiplication and Division Facts. However, instead of using checks (✓) to show which facts have been mastered, a multiplication symbol (X) would be written in the top half of the box to show that a multiplication fact has been mastered. A division symbol (÷) would be written in the bottom half of the box to show that a division fact has been mastered. For example:



If Roberto had learned the 2's, 3's, and 4's of Multiplication and Division, the Record Sheet for him would appear as shown below:

Multiplication-Division Facts FACTS BEING RECORDED										
NAME OF STUDENT	2's	3's	4's	5's	6's	7's	8's	9's	10's	MASTERED
ROBERTO	÷ X	÷ X	÷ X	/	/	/	/	/	/	

III. PROGRESSION

The following progression of learning the facts is suggested. For every fact, (for example: the sums to 4, the sums to 5 and 6, subtracting from 11, subtracting from 14, multiplying by 3, dividing by 3, etc.) a Fact sheet would have to be made. (SEE APPENDIX A.)

The Progression

- | | |
|--------|--|
| SIMPLE | 1. Simple Addition Facts, sums to 4, 5-6, 7, 8, 9, 10. |
| | 2. Simple Subtraction Facts, subtracting from 1-4, 5 and 6, 7, 8, 9, 10. |
| TO | 3. Addition Facts, All Combinations, 2's, 2's, 4's, 5's, 6's, 7's, 8's, 9's, 10's. |
| | 4. Hard Subtraction Facts, subtracting from 11, 12, 13, 14, 15-16, 17-18, 20 pt. 1, 20 pt. 2. |
| HARD | 5. Multiplication/Division Facts (which are learned together) 2's, 3's, 4's, 5's, 6's, 7's, 8's, 9's, 10's,
(11's and 12's optional.) |

All the simple Addition and Simple Subtraction Facts should be mastered before the Addition Facts, All Combinations are learned. Then, the Hard Subtraction Facts are learned, followed by the Multiplication/Division Facts. Because of their relationship, the Multiplication/Division Facts would be learned simultaneously. For example, a child would work on the 2's of multiplication - multiplying by 2 and the 2's of division - dividing by 2. When the 2's are mastered, he/she would pass on to the 3's of multiplication and division.

IV. PROCEDURE

At the beginning of school, the mastery tests are given as diagnostic tests to determine which facts the children have already mastered. The teacher must use his/her discretion insofar as how many tests are given. Then, using the Fact Sheet Record Sheets, the teacher checks off the facts the students have mastered. Any child who shows mastery of a particular fact would not be asked to work on that fact.

After the diagnostic tests have been given, the daily fact practice procedure begins. Students are given Facts Sheets every day, Monday through Thursday. They are to be completed as seat work or homework. Children should complete the Fact Sheets in the following way so it does not become a senseless copying exercise.

FIRST when writing the facts children should work on one column from top to bottom, concentrating on one fact. See example: One fact a time, top to bottom. Student's should not write across. →

SECOND the students should write the whole fact. For example, when writing $14-5=9$, they should write the whole fact, not just $14-5$ and then later write in the answer 9. Or, sometimes students might write all the 14's first. (SEE EXAMPLE) then all the numbers being subtracted, and then all the answers. That is not the correct way to write the facts.

THIRD the students should repeat the fact to himself/herself as he/she is writing the fact.

SUBTRACTING FROM 14							TEST
14 -4 — 10	14 -5 — 9	14 -6 — 8	14 -7 — 7	14 -8 — 6	14 -9 — 5		
14 -4 — 10						14 -4 — 10	
14 -4 — 10						14 -9 — 10	
14 -4 — 10						14 -7 — 10	
14 -4 — 10						14 -5 — 10	
14 -4 — 10						14 -6 — 10	
14 -4 — 10						14 -8 — 10	

← This column is a practice test for students to time themselves.

THIRD (CONTINUED)

The teacher should suggest that each child close his/her eyes when saying the fact and pretend that he/she is writing the fact on a chalkboard inside his/her mind. These techniques of seeing, writing and verbalizing the facts will facilitate memorization.

It is suggested that a student drill on only two different Fact Sheets each week. Thus, a child would receive the same Fact Sheet drilling a particular set of facts on Monday and Tuesday and then receive a different Fact Sheet drilling another set of facts on Wednesday and Thursday.

The timed Mastery Test will be given on Fridays. (It is suggested that no more than one minute be given to complete each set of facts. For example, if each child was working on two different sets of facts (example: Subtracting from 13 and Subtracting from 14 the length of the test would be no longer than two minutes.) The children will be tested only on the facts they had been working on during that week. The entire class maybe tested simultaneously.

The routine of Fact Sheets Monday through Thursday with tests on Friday can be continued as long as the teacher desires. It can be part of the Math Instruction the whole school year. After all, the Fact Sheets and Mastery Tests have been made, duplicated and stored (they can easily be stored in lunch boxes), the teacher must prepare daily the Fact Sheets and Friday's Mastery Tests. Once the system is organized, the teacher would have to spend 10 to 15 minutes daily to run the system.

The ultimate goal for the students is to memorize the facts and pass all the Mastery Tests. An appendix showing all the Fact Sheets and Mastery Tests follows.

SECOND ACTIVITY FOR SKILL E (CONTINUED)

FACT SHEET SYSTEM

APPENDIX A. -- Fact Sheets, the facts that go on each Fact Sheet. The teacher will have to write in each set of facts on the standard fact sheet form shown previously on page 79. of this curriculum.

I. SIMPLE ADDITION FACTS, SUMS TO 10.

A. SUMS TO 4:

1	1	2	2	2	3	3
$\frac{+0}{1}$	$\frac{+1}{2}$	$\frac{+0}{2}$	$\frac{+1}{3}$	$\frac{+2}{4}$	$\frac{+0}{3}$	$\frac{+1}{4}$

B. SUMS TO 5 and 6:

1	1	1	1	2	2	3	3
$\frac{+2}{3}$	$\frac{+3}{4}$	$\frac{+4}{5}$	$\frac{+5}{6}$	$\frac{+3}{5}$	$\frac{+4}{6}$	$\frac{+2}{5}$	$\frac{+3}{6}$

C. SUMS TO 7:

1	2	3	4	4	4	5	5	6
$\frac{+6}{7}$	$\frac{+5}{7}$	$\frac{+4}{7}$	$\frac{+1}{5}$	$\frac{+2}{6}$	$\frac{+3}{7}$	$\frac{+1}{6}$	$\frac{+2}{7}$	$\frac{+1}{7}$

D. SUMS TO 8:

1	2	3	3	3	4	4	5	5	6	7
$\frac{+7}{8}$	$\frac{+6}{8}$	$\frac{+3}{6}$	$\frac{+4}{7}$	$\frac{+5}{8}$	$\frac{+3}{7}$	$\frac{+4}{8}$	$\frac{+2}{7}$	$\frac{+3}{8}$	$\frac{+2}{8}$	$\frac{+1}{8}$

E. SUMS TO 9:

1	2	3	3	4	4	5	6	6	7	8
$\frac{+8}{9}$	$\frac{+7}{9}$	$\frac{+5}{8}$	$\frac{+6}{9}$	$\frac{+4}{8}$	$\frac{+5}{9}$	$\frac{+4}{9}$	$\frac{+2}{8}$	$\frac{+3}{9}$	$\frac{+2}{9}$	$\frac{+1}{9}$

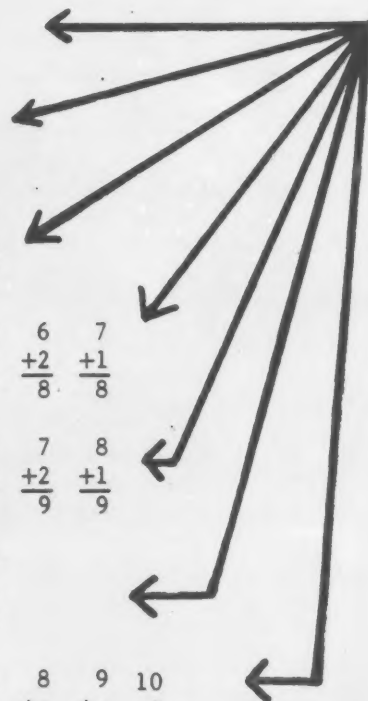
F. SUMS TO 10 pt. 1:

1	1	2	2	3	3	4	4	4
$\frac{+8}{9}$	$\frac{+9}{10}$	$\frac{+7}{9}$	$\frac{+8}{10}$	$\frac{+6}{9}$	$\frac{+7}{10}$	$\frac{+4}{8}$	$\frac{+5}{9}$	$\frac{+6}{10}$

G. SUMS TO 10 pt. 2:

5	5	5	6	6	6	7	7	8	8	9	10
$\frac{+3}{8}$	$\frac{+4}{9}$	$\frac{+5}{10}$	$\frac{+2}{8}$	$\frac{+3}{9}$	$\frac{+4}{10}$	$\frac{+2}{9}$	$\frac{+3}{10}$	$\frac{+1}{9}$	$\frac{+2}{10}$	$\frac{+1}{10}$	$\frac{+0}{10}$

Each set of facts represents a different Fact Sheet.



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II. SIMPLE SUBTRACTION FACTS

A. Subtracting From 1 to 4:

$$\begin{array}{r} 1 \\ -0 \\ \hline 1 \end{array} \quad \begin{array}{r} 1 \\ -1 \\ \hline 0 \end{array} \quad \begin{array}{r} 2 \\ -1 \\ \hline 1 \end{array} \quad \begin{array}{r} 3 \\ -1 \\ \hline 2 \end{array} \quad \begin{array}{r} 3 \\ -2 \\ \hline 1 \end{array} \quad \begin{array}{r} 4 \\ -1 \\ \hline 3 \end{array} \quad \begin{array}{r} 4 \\ -2 \\ \hline 2 \end{array} \quad \begin{array}{r} 4 \\ -3 \\ \hline 1 \end{array} \quad \begin{array}{r} 4 \\ -4 \\ \hline 0 \end{array}$$

B. Subtracting From 5 and 6:

$$\begin{array}{r} 5 \\ -1 \\ \hline 4 \end{array} \quad \begin{array}{r} 5 \\ -2 \\ \hline 3 \end{array} \quad \begin{array}{r} 5 \\ -3 \\ \hline 2 \end{array} \quad \begin{array}{r} 5 \\ -4 \\ \hline 1 \end{array} \quad \begin{array}{r} 6 \\ -1 \\ \hline 5 \end{array} \quad \begin{array}{r} 6 \\ -2 \\ \hline 4 \end{array} \quad \begin{array}{r} 6 \\ -3 \\ \hline 3 \end{array} \quad \begin{array}{r} 6 \\ -4 \\ \hline 2 \end{array} \quad \begin{array}{r} 6 \\ -5 \\ \hline 1 \end{array} \quad \begin{array}{r} 6 \\ -6 \\ \hline 0 \end{array}$$

C. Subtracting From 7:

$$\begin{array}{r} 7 \\ -0 \\ \hline 7 \end{array} \quad \begin{array}{r} 7 \\ -1 \\ \hline 6 \end{array} \quad \begin{array}{r} 7 \\ -2 \\ \hline 5 \end{array} \quad \begin{array}{r} 7 \\ -3 \\ \hline 4 \end{array} \quad \begin{array}{r} 7 \\ -4 \\ \hline 3 \end{array} \quad \begin{array}{r} 7 \\ -5 \\ \hline 2 \end{array} \quad \begin{array}{r} 7 \\ -6 \\ \hline 1 \end{array} \quad \begin{array}{r} 7 \\ -7 \\ \hline 0 \end{array}$$

D. Subtracting From 8:

$$\begin{array}{r} 8 \\ -0 \\ \hline 8 \end{array} \quad \begin{array}{r} 8 \\ -1 \\ \hline 7 \end{array} \quad \begin{array}{r} 8 \\ -2 \\ \hline 6 \end{array} \quad \begin{array}{r} 8 \\ -3 \\ \hline 5 \end{array} \quad \begin{array}{r} 8 \\ -4 \\ \hline 4 \end{array} \quad \begin{array}{r} 8 \\ -5 \\ \hline 3 \end{array} \quad \begin{array}{r} 8 \\ -6 \\ \hline 2 \end{array} \quad \begin{array}{r} 8 \\ -7 \\ \hline 1 \end{array} \quad \begin{array}{r} 8 \\ -8 \\ \hline 0 \end{array}$$

E. Subtracting From 9:

$$\begin{array}{r} 9 \\ -0 \\ \hline 9 \end{array} \quad \begin{array}{r} 9 \\ -1 \\ \hline 8 \end{array} \quad \begin{array}{r} 9 \\ -2 \\ \hline 7 \end{array} \quad \begin{array}{r} 9 \\ -3 \\ \hline 6 \end{array} \quad \begin{array}{r} 9 \\ -4 \\ \hline 5 \end{array} \quad \begin{array}{r} 9 \\ -5 \\ \hline 4 \end{array} \quad \begin{array}{r} 9 \\ -6 \\ \hline 3 \end{array} \quad \begin{array}{r} 9 \\ -7 \\ \hline 2 \end{array} \quad \begin{array}{r} 9 \\ -8 \\ \hline 1 \end{array} \quad \begin{array}{r} 9 \\ -9 \\ \hline 0 \end{array}$$

F. Subtracting From 10:

$$\begin{array}{r} 10 \\ -0 \\ \hline 10 \end{array} \quad \begin{array}{r} 10 \\ -1 \\ \hline 9 \end{array} \quad \begin{array}{r} 10 \\ -2 \\ \hline 8 \end{array} \quad \begin{array}{r} 10 \\ -3 \\ \hline 7 \end{array} \quad \begin{array}{r} 10 \\ -4 \\ \hline 6 \end{array} \quad \begin{array}{r} 10 \\ -5 \\ \hline 5 \end{array} \quad \begin{array}{r} 10 \\ -6 \\ \hline 4 \end{array} \quad \begin{array}{r} 10 \\ -7 \\ \hline 3 \end{array} \quad \begin{array}{r} 10 \\ -8 \\ \hline 2 \end{array} \quad \begin{array}{r} 10 \\ -9 \\ \hline 1 \end{array} \quad \begin{array}{r} 10 \\ -10 \\ \hline 0 \end{array}$$

III. ADDITION FACTS, ALL COMBINATIONS

A. Adding the 2's:	2	2	2	2	2	2	2	2	2	2
	$\frac{+1}{3}$	$\frac{+2}{4}$	$\frac{+3}{5}$	$\frac{+4}{6}$	$\frac{+5}{7}$	$\frac{+6}{8}$	$\frac{+7}{9}$	$\frac{+8}{10}$	$\frac{+9}{11}$	$\frac{+10}{12}$
B. Adding the 3's:	3	3	3	3	3	3	3	3	3	3
	$\frac{+1}{4}$	$\frac{+2}{5}$	$\frac{+3}{6}$	$\frac{+4}{7}$	$\frac{+5}{8}$	$\frac{+6}{9}$	$\frac{+7}{10}$	$\frac{+8}{11}$	$\frac{+9}{12}$	$\frac{+10}{13}$
C. Adding the 4's:	4	4	4	4	4	4	4	4	4	4
	$\frac{+1}{5}$	$\frac{+2}{6}$	$\frac{+3}{7}$	$\frac{+4}{8}$	$\frac{+5}{9}$	$\frac{+6}{10}$	$\frac{+7}{11}$	$\frac{+8}{12}$	$\frac{+9}{13}$	$\frac{+10}{14}$
D. Adding the 5's:	5	5	5	5	5	5	5	5	5	5
	$\frac{+1}{6}$	$\frac{+2}{7}$	$\frac{+3}{8}$	$\frac{+4}{9}$	$\frac{+5}{10}$	$\frac{+6}{11}$	$\frac{+7}{12}$	$\frac{+8}{13}$	$\frac{+9}{14}$	$\frac{+10}{15}$
E. Adding the 6's:	6	6	6	6	6	6	6	6	6	6
	$\frac{+1}{7}$	$\frac{+2}{8}$	$\frac{+3}{9}$	$\frac{+4}{10}$	$\frac{+5}{11}$	$\frac{+6}{12}$	$\frac{+7}{13}$	$\frac{+8}{14}$	$\frac{+9}{15}$	$\frac{+10}{16}$
F. Adding the 7's:	7	7	7	7	7	7	7	7	7	7
	$\frac{+1}{8}$	$\frac{+2}{9}$	$\frac{+3}{10}$	$\frac{+4}{11}$	$\frac{+5}{12}$	$\frac{+6}{13}$	$\frac{+7}{14}$	$\frac{+8}{15}$	$\frac{+9}{16}$	$\frac{+10}{17}$
G. Adding the 8's:	8	8	8	8	8	8	8	8	8	8
	$\frac{+1}{9}$	$\frac{+2}{10}$	$\frac{+3}{11}$	$\frac{+4}{12}$	$\frac{+5}{13}$	$\frac{+6}{14}$	$\frac{+7}{15}$	$\frac{+8}{16}$	$\frac{+9}{17}$	$\frac{+10}{18}$
H. Adding the 9's:	9	9	9	9	9	9	9	9	9	9
	$\frac{+1}{10}$	$\frac{+2}{11}$	$\frac{+3}{12}$	$\frac{+4}{13}$	$\frac{+5}{14}$	$\frac{+6}{15}$	$\frac{+7}{16}$	$\frac{+8}{17}$	$\frac{+9}{18}$	$\frac{+10}{19}$
I. Adding the 10's:	10	10	10	10	10	10	10	10	10	10
	$\frac{+1}{11}$	$\frac{+2}{12}$	$\frac{+3}{13}$	$\frac{+4}{14}$	$\frac{+5}{15}$	$\frac{+6}{16}$	$\frac{+7}{17}$	$\frac{+8}{18}$	$\frac{+9}{19}$	$\frac{+10}{20}$

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IV: HARD SUBTRACTION FACTS

A. Subtracting From 11:	11	11	11	11	11	11	11	11	11
	$\frac{-1}{10}$	$\frac{-2}{9}$	$\frac{-3}{8}$	$\frac{-4}{7}$	$\frac{-5}{6}$	$\frac{-6}{5}$	$\frac{-7}{4}$	$\frac{-8}{3}$	$\frac{-9}{2}$
B. Subtracting From 12:	12	12	12	12	12	12	12	12	12
	$\frac{-1}{11}$	$\frac{-2}{10}$	$\frac{-3}{9}$	$\frac{-4}{8}$	$\frac{-5}{7}$	$\frac{-6}{6}$	$\frac{-7}{5}$	$\frac{-8}{4}$	$\frac{-9}{3}$
C. Subtracting From 13:	13	13	13	13	13	13	13	13	13
	$\frac{-1}{12}$	$\frac{-2}{11}$	$\frac{-3}{10}$	$\frac{-4}{9}$	$\frac{-5}{8}$	$\frac{-6}{7}$	$\frac{-7}{6}$	$\frac{-8}{5}$	$\frac{-9}{4}$
D. Subtracting From 14:	14	14	14	14	14	14	14	14	14
	$\frac{-1}{13}$	$\frac{-2}{12}$	$\frac{-3}{11}$	$\frac{-4}{10}$	$\frac{-5}{9}$	$\frac{-6}{8}$	$\frac{-7}{7}$	$\frac{-8}{6}$	$\frac{-9}{5}$
E. Subtracting From 15 & 16:	15	15	15	15	15	16	16	16	16
	$\frac{-5}{10}$	$\frac{-6}{9}$	$\frac{-7}{8}$	$\frac{-8}{7}$	$\frac{-9}{6}$	$\frac{-6}{10}$	$\frac{-7}{9}$	$\frac{-8}{8}$	$\frac{-9}{7}$
F. Subtracting From 17 & 18:	17	17	17	18	18	17	17	18	
	$\frac{-7}{10}$	$\frac{-8}{9}$	$\frac{-9}{8}$	$\frac{-8}{10}$	$\frac{-9}{9}$	$\frac{-8}{9}$	$\frac{-9}{8}$	$\frac{-9}{9}$	
G. Subtracting From 20 pt. 1:	20	20	20	20	20	20	20	20	20
	$\frac{-19}{1}$	$\frac{-18}{2}$	$\frac{-17}{3}$	$\frac{-16}{4}$	$\frac{-15}{5}$	$\frac{-14}{6}$	$\frac{-13}{7}$	$\frac{-12}{8}$	$\frac{-11}{9}$
H. Subtracting From 20 pt. 2:	20	20	20	20	20	20	20	20	20
	$\frac{-10}{10}$	$\frac{-9}{11}$	$\frac{-8}{12}$	$\frac{-7}{13}$	$\frac{-6}{14}$	$\frac{-5}{15}$	$\frac{-4}{16}$	$\frac{-3}{17}$	$\frac{-2}{18}$
									$\frac{-1}{19}$

V. MULTIPLICATION AND DIVISION FACTS:

A. Mutlplying By 2:

0	1	2	3	4	5	6	7	8	9	10
$\frac{x2}{0}$	$\frac{x2}{2}$	$\frac{x2}{4}$	$\frac{x2}{6}$	$\frac{x2}{8}$	$\frac{x2}{10}$	$\frac{x2}{12}$	$\frac{x2}{14}$	$\frac{x2}{16}$	$\frac{x2}{18}$	$\frac{x2}{20}$

B. Dividing By 2:

$2 \overline{)0}$	$2 \overline{)2}$	$2 \overline{)4}$	$2 \overline{)6}$	$2 \overline{)8}$	$2 \overline{)10}$
$2 \overline{)12}$	$2 \overline{)14}$	$2 \overline{)16}$	$2 \overline{)18}$	$2 \overline{)20}$	

C. Multiplying By 3:

0	1	2	3	4	5	6	7	8	9	10
$\frac{x3}{0}$	$\frac{x3}{3}$	$\frac{x3}{6}$	$\frac{x3}{9}$	$\frac{x3}{12}$	$\frac{x3}{15}$	$\frac{x3}{18}$	$\frac{x3}{21}$	$\frac{x3}{24}$	$\frac{x3}{27}$	$\frac{x3}{30}$

D. Dividing By 3:

$3 \overline{)0}$	$3 \overline{)3}$	$3 \overline{)6}$	$3 \overline{)9}$	$3 \overline{)12}$	$3 \overline{)15}$
$3 \overline{)18}$	$3 \overline{)21}$	$3 \overline{)24}$	$3 \overline{)27}$	$3 \overline{)30}$	

E. Multiplying By 4:

0	1	2	3	4	5	6	7	8	9	10
$\frac{x4}{0}$	$\frac{x4}{4}$	$\frac{x4}{8}$	$\frac{x4}{12}$	$\frac{x4}{16}$	$\frac{x4}{20}$	$\frac{x4}{24}$	$\frac{x4}{28}$	$\frac{x4}{32}$	$\frac{x4}{36}$	$\frac{x4}{40}$

F. Dividing By 4:

$4 \overline{)0}$	$4 \overline{)4}$	$4 \overline{)8}$	$4 \overline{)12}$	$4 \overline{)16}$	$4 \overline{)20}$
$4 \overline{)24}$	$4 \overline{)28}$	$4 \overline{)32}$	$4 \overline{)36}$	$4 \overline{)40}$	

G. Multiplying By 5:

0	1	2	3	4	5	6	7	8	9	10
$\frac{x5}{0}$	$\frac{x5}{5}$	$\frac{x5}{10}$	$\frac{x5}{15}$	$\frac{x5}{20}$	$\frac{x5}{25}$	$\frac{x5}{30}$	$\frac{x5}{35}$	$\frac{x5}{40}$	$\frac{x5}{45}$	$\frac{x5}{50}$

H: Dividing By 5:

$5 \overline{)0}$	$5 \overline{)5}$	$5 \overline{)10}$	$5 \overline{)15}$	$5 \overline{)20}$	$5 \overline{)25}$
$5 \overline{)30}$	$5 \overline{)35}$	$5 \overline{)40}$	$5 \overline{)45}$	$5 \overline{)50}$	

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I. Multiplying By 6:

0	1	2	3	4	5	6	7	8	9	10
$\frac{x6}{0}$	$\frac{x6}{6}$	$\frac{x6}{12}$	$\frac{x6}{18}$	$\frac{x6}{24}$	$\frac{x6}{30}$	$\frac{x6}{36}$	$\frac{x6}{42}$	$\frac{x6}{48}$	$\frac{x6}{54}$	$\frac{x6}{60}$

J. Dividing By 6:

$\frac{0}{6 \overline{)0}}$	$\frac{1}{6 \overline{)6}}$	$\frac{2}{6 \overline{)12}}$	$\frac{3}{6 \overline{)18}}$	$\frac{4}{6 \overline{)24}}$	$\frac{5}{6 \overline{)30}}$
$\frac{6}{6 \overline{)26}}$	$\frac{7}{6 \overline{)42}}$	$\frac{8}{6 \overline{)48}}$	$\frac{9}{6 \overline{)54}}$	$\frac{10}{6 \overline{)60}}$	

K: Multiplying By 7:

0	1	2	3	4	5	6	7	8	9	10
$\frac{x7}{0}$	$\frac{x7}{7}$	$\frac{x7}{14}$	$\frac{x7}{21}$	$\frac{x7}{28}$	$\frac{x7}{35}$	$\frac{x7}{42}$	$\frac{x7}{49}$	$\frac{x7}{56}$	$\frac{x7}{64}$	$\frac{x7}{70}$

L: Dividing By 7:

$\frac{0}{7 \overline{)0}}$	$\frac{1}{7 \overline{)7}}$	$\frac{2}{7 \overline{)14}}$	$\frac{3}{7 \overline{)21}}$	$\frac{4}{7 \overline{)28}}$	$\frac{5}{7 \overline{)35}}$
$\frac{6}{7 \overline{)42}}$	$\frac{7}{7 \overline{)49}}$	$\frac{8}{7 \overline{)56}}$	$\frac{9}{7 \overline{)64}}$	$\frac{10}{7 \overline{)70}}$	

M: Multiplying By 8:

0	1	2	3	4	5	6	7	8	9	10
$\frac{x8}{0}$	$\frac{x8}{8}$	$\frac{x8}{16}$	$\frac{x8}{24}$	$\frac{x8}{32}$	$\frac{x8}{40}$	$\frac{x8}{48}$	$\frac{x8}{56}$	$\frac{x8}{64}$	$\frac{x8}{72}$	$\frac{x8}{80}$

N: Dividing By 8:

$\frac{0}{8 \overline{)0}}$	$\frac{1}{8 \overline{)8}}$	$\frac{2}{8 \overline{)16}}$	$\frac{3}{8 \overline{)24}}$	$\frac{4}{8 \overline{)32}}$	$\frac{5}{8 \overline{)40}}$
$\frac{6}{8 \overline{)48}}$	$\frac{7}{8 \overline{)56}}$	$\frac{8}{8 \overline{)64}}$	$\frac{9}{8 \overline{)72}}$	$\frac{10}{8 \overline{)80}}$	

O: Multiplying By 9:

0	1	2	3	4	5	6	7	8	9	10
$\frac{x9}{0}$	$\frac{x9}{9}$	$\frac{x9}{18}$	$\frac{x9}{27}$	$\frac{x9}{36}$	$\frac{x9}{45}$	$\frac{x9}{54}$	$\frac{x9}{63}$	$\frac{x9}{72}$	$\frac{x9}{81}$	$\frac{x9}{90}$

P: Dividing By 9:

$\frac{0}{9 \overline{)0}}$	$\frac{1}{9 \overline{)9}}$	$\frac{2}{9 \overline{)18}}$	$\frac{3}{9 \overline{)27}}$	$\frac{4}{9 \overline{)36}}$	$\frac{5}{9 \overline{)45}}$
$\frac{6}{9 \overline{)54}}$	$\frac{7}{9 \overline{)63}}$	$\frac{8}{9 \overline{)72}}$	$\frac{9}{9 \overline{)81}}$	$\frac{10}{9 \overline{)90}}$	

Q: Multiplying By 10:

0	1	2	3	4	5	6	7	8	9	10
$\frac{\times 10}{0}$	$\frac{\times 10}{10}$	$\frac{\times 10}{20}$	$\frac{\times 10}{30}$	$\frac{\times 10}{40}$	$\frac{\times 10}{50}$	$\frac{\times 10}{60}$	$\frac{\times 10}{70}$	$\frac{\times 10}{80}$	$\frac{\times 10}{90}$	$\frac{\times 10}{100}$

R: Dividing By 10:

$10 \overline{)0}$	$10 \overline{)10}$	$10 \overline{)20}$	$10 \overline{)30}$	$10 \overline{)40}$	$10 \overline{)50}$
$10 \overline{)60}$	$10 \overline{)70}$	$10 \overline{)80}$	$10 \overline{)90}$	$10 \overline{)100}$	

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APPENDIX B. -- MASTERY TEST EXAMPLES:

To make Mastery Tests, each set of facts must be mixed up and written horizontally on the Test Sheet. As many as 6 different tests can be placed on one test sheet. Example Addition, Subtraction, Multiplication and Division Tests are shown below. To assist in preparing the tests so that the students know which tests they should complete on the Test Sheet, it is suggested that the teacher mark an **X** next to the set of facts to be tested. Then, the student only completes those facts. For example, in Mastery Test Example 1., Roberto would only complete the 5's and 6's. (SEE BELOW)

MASTERY TEST EXAMPLE 1. - ADDITION

<u>Roberto</u>										
Nombre		Fecha								
Maestro		Grado								
Prueba de todas las combinaciones de suma.										
2's	2	2	2	2	2	2	2	2	2	2
	+2	+1	+5	+7	+4	+6	+3	+9	+8	+10
3's	3	3	3	3	3	3	3	3	3	3
	+1	+3	+5	+9	+7	+8	+2	+4	+6	+10
4's	4	4	4	4	4	4	4	4	4	4
	+9	+7	+8	+1	+5	+2	+4	+6	+3	+10
5's	5	5	5	5	5	5	5	5	5	5
X	+1	+5	+9	+2	+4	+8	+3	+6	+7	+10
6's	6	6	6	6	6	6	6	6	6	6
X	+	+	+	+	+	+	+	+	+	+

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MASTERY TEST EXAMPLE 2. - SUBTRACTION

Nombre		Fecha							
Maestro		Grado							
Prueba: Restando a 11, 12, 13, 14.									
11's	11	11	11	11	11	11	11	11	11
	-1	-3	-5	-7	-9	-2	-4	-6	-8
12's	12	12	12	12	12	12	12	12	12
	-2	-4	-6	-8	-3	-7	-5	-9	
13's	13	13	13	13	13	13	13		
	-9	-7	-5	-3	-8	-6	-4		
14's	14	14	14	14	14	14			
	-4	-8	-6	-5	-7	-9			

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APPENDIX B. (CONTINUED)

MASTERY TEST EXAMPLE 3. - MULTIPLICATION

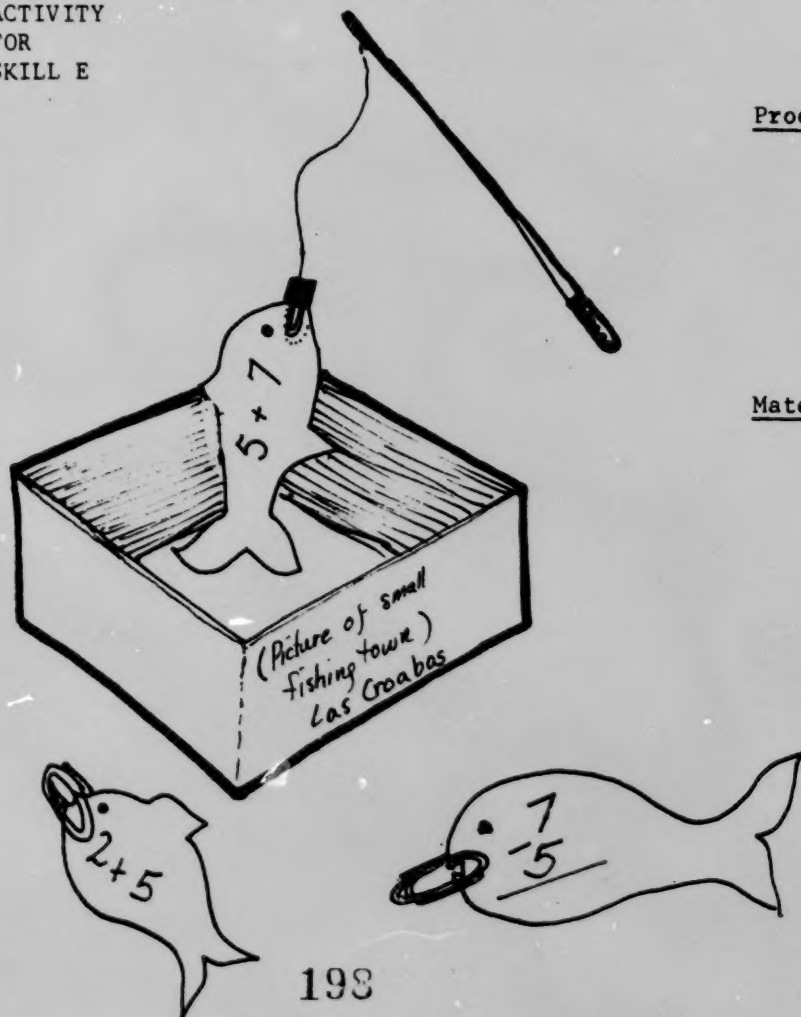
Nombre												Fecha											
Maestro												Grado											
Prueba de multiplicacion, tabla del 2 al 6																							
2's	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	<u>x2</u>	<u>x5</u>	<u>x7</u>	<u>x3</u>	<u>x1</u>	<u>x6</u>	<u>x4</u>	<u>x9</u>	<u>x0</u>	<u>x8</u>	<u>x10</u>												
3's	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
	<u>x2</u>	<u>x5</u>	<u>x7</u>	<u>x3</u>	<u>x1</u>	<u>x6</u>	<u>x4</u>	<u>x9</u>	<u>x0</u>	<u>x8</u>	<u>x10</u>												
4's	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
	<u>x2</u>	<u>x5</u>	<u>x7</u>	<u>x3</u>	<u>x1</u>	<u>x6</u>	<u>x4</u>	<u>x9</u>	<u>x0</u>	<u>x8</u>	<u>x10</u>												
5's	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5		
	<u>x2</u>	<u>x5</u>	<u>x7</u>	<u>x3</u>	<u>x1</u>	<u>x6</u>	<u>x4</u>	<u>x9</u>	<u>x0</u>	<u>x8</u>	<u>x10</u>												
6's	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		
	<u>x2</u>	<u>x5</u>	<u>x7</u>	<u>x3</u>	<u>x1</u>	<u>x6</u>	<u>x4</u>	<u>x9</u>	<u>x0</u>	<u>x8</u>	<u>x10</u>												

MASTERY TEST EXAMPLE 4. - DIVISION

Nombre												Fecha											
Maestro												Grado											
Prueba de division: (2, 3, 4, 5)																							
2's	2	0	2	10	2	4	2	14	2	8		2	12	2	2	2	20	2	16	2	6	2	18
	$\overline{)0}$	$\overline{)10}$	$\overline{)4}$	$\overline{)14}$	$\overline{)8}$		$\overline{)12}$	$\overline{)2}$	$\overline{)20}$	$\overline{)16}$	$\overline{)6}$	$\overline{)18}$											
3's	3	0	3	15	3	9	3	3	3	24		3	12	3	18	3	6	3	27	3	21	3	30
	$\overline{)0}$	$\overline{)15}$	$\overline{)9}$	$\overline{)3}$	$\overline{)24}$		$\overline{)12}$	$\overline{)18}$	$\overline{)6}$	$\overline{)27}$	$\overline{)21}$	$\overline{)30}$											
4's	4	0	4	8	4	24	4	32	4	16		4	4	4	12	4	36	4	20	4	40	4	28
	$\overline{)0}$	$\overline{)8}$	$\overline{)24}$	$\overline{)32}$	$\overline{)16}$		$\overline{)4}$	$\overline{)12}$	$\overline{)36}$	$\overline{)20}$	$\overline{)40}$	$\overline{)28}$											
5's	5	0	5	10	5	30	5	20	5	40		5	25	5	25	5	15	5	50	5	45	5	5
	$\overline{)0}$	$\overline{)10}$	$\overline{)30}$	$\overline{)20}$	$\overline{)40}$		$\overline{)25}$	$\overline{)25}$	$\overline{)15}$	$\overline{)50}$	$\overline{)45}$	$\overline{)5}$											

THIRD
ACTIVITY
FOR
SKILL E

Play "Pescando en las Croabas Game."



Procedure:

Pupils fish for the addition and subtraction facts which are going to be on the back of the fish. If they can give the answer they can retain the fish. The player with greatest number of fish is the winner. (Facts should be presented both horizontally and vertically.)

Materials:

1. Fish Facts (as many as you want) with paper clips attached to them.
2. Fishing pole (stick with a string and a magnet attached at the end).

THIRD
ACTIVITY
FOR
SKILL E
(CONTINUED)

Play the Tic-Tac-Toe with addition and/or subtraction facts using the following game board:

Materials:

Tic-Tac-Toe		

0 markers
and
□ markers

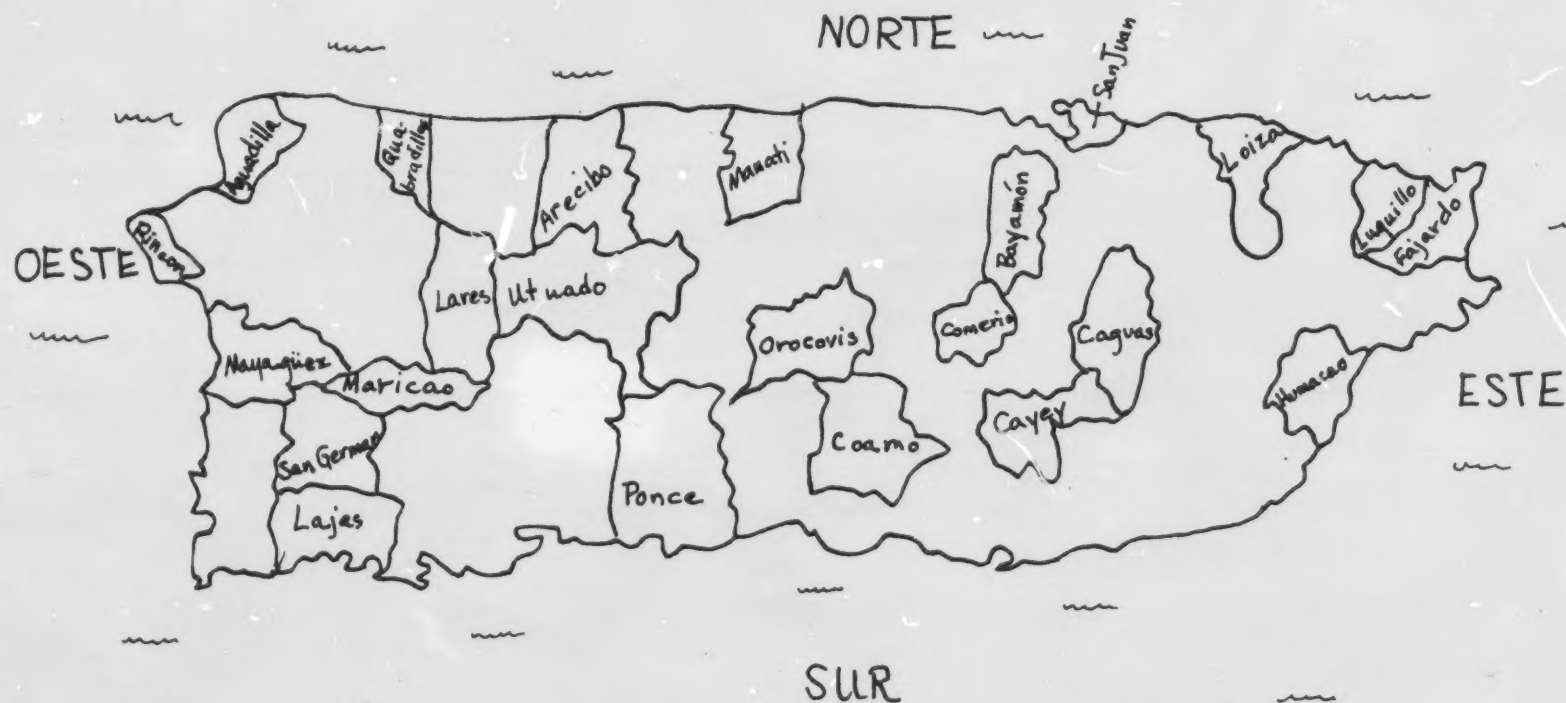
Using flash cards and taking turns, two (2) players give answers to addition and subtraction facts. If the player answers correctly, he places his marker (0 or □) where desired. The first child to place three markers in a row; up, down, across or diagonally wins the game.

FOURTH
ACTIVITY
FOR
SKILL E

Play "Visitando a Puerto Rico."

A. Make a game board with a map of Puerto Rico in the following way:

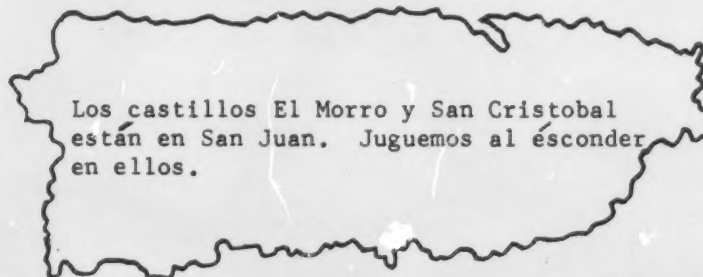
Get markers of any kind.



FOURTH
ACTIVITY
FOR
SKILL E
(CONTINUED)

- B. Make a card for each town with the following information written on it. The cards can be shaped like small maps of Puerto Rico or any other way you prefer.

EXAMPLE:



1. Vas a pasar un fin de semana en Aguadilla en el Campamento de Niños Escuchas de Guajataca.
2. Cuidado con el tapón de Bayamón.
3. Vamos a comprar piraguas en la plaza de Caguas.
4. Si quieres probar quenepas deliciosas, visita a Coamo.
5. Podrás ver una vista preciosa de la Cordillera Central en Camerio.
6. Vas para Fajardo y visitas el hotel Conquistador.
7. Pasemos un día de pesca en la playa de Humacao.
8. ¿Has visto la Bahía Fosforecente en Lajas?
9. Celebramos El Grito de Lares en la plaza de Lares.
10. ¿Tienes tu disfraz para celebrar las fiestas de Loiza?

11. Para aliviar el calor visitas El Yunque o vas a la playa en Luquillo.
12. En Manatí encontrarás jugosas piñas.
13. Busquemos los maracas, el güiro y el cuatro para ir a parrandear a Maricao.
14. Los mangos de Mayagüez son riquísimos. Compra para todos.
15. En Orocovis comeremos ricos piononos.
16. En Ponce puedes visitar el Museo y el Parque de Bombas.
17. Los Piratas es el nombre del equipo de baloncesto de Quebradillas. Vamos a ver un juego.
18. Participa en las competencias de patinaje sobre las olas en Rincón.
19. La primera iglesia construida en toda la América queda en San Germán. Se llama la Iglesia Porta Coeli.
20. Los castillos El Morro y San Cristóbal están en San Juan. Juguemos al esconder en ellos.
21. Si quieres aprender más sobre los indios tainos, visita el Centro Ceremonial Indígena en Utuado.
22. El Observatorio Ionosférico queda en Arecibo y es muy impresionante. Visítalo.

FOURTH
ACTIVITY
FOR
SKILL E
(CONTINUED)

C. Use addition and/or subtraction flash cards.

D. Prepare a ditto of the following record sheet:

VISITANDO A PUERTO RICO					
Jugador:	1er juego	2do juego	3er juego	4to juego	
Pueblos					
1. Aguadilla					
2. Arecibo					
3. Bayamón					
4. Caguas					
5. Coamo					
6. Comerio					
7. Fajardo					
8. Humacao					
9. Lajas					
10. Lares					
11. Loiza					
12. Luquillo					
13. Manatí					
14. Maricao					
15. Mayagüez					
16. Orocovi					
17. Ponce					
18. Quebradillas					
19. Rincón					
20. San Germán					
21. San Juan					
22. Utuado					

FOURTH
ACTIVITY
FOR
SKILL E
(CONTINUED)

To play "Visitando a Puerto Rico":

Mix the flash cards and file them together.

Mix the town cards and pile them together.

Each player has his own record sheet that is good for four games.

Taking turns, each player takes a Flash Card. If he gives the correct answer instantly and without hesitation, he is allowed to take the top Town Card, read it, put his marker on that town on the game board and mark off that particular town on his record sheet. The cards are then placed at the bottom of their respective piles.

The first player to mark off all of the towns on his record sheet wins the game.

If a player gets a town card which is already marked off on his record sheet he can keep it for a maximum of three turns and exchange it with someone else during this time. If he does not exchange the card, it should be placed at the bottom of the pile.

SKILL F: Understanding the commutative property of addition.

VOCABULARY: commutative property "propiedad conmutativa"
 addition "suma"
 equal "igual"
 sum "suma"

FIRST
 ACTIVITY
 FOR
 SKILL F

Using the following information sheet either as a transparency or a handout, explain the commutative property of addition in the following way:

1. Ask the children how many guitars they see at the top of the sheet or transparency.
2. Direct the children's attention to the figures of Maritza and Pepe who are entering the music room from different directions.
3. Instruct the students to read and explain what Maritza and Pepe are seeing and why they see it differently.
4. Lead the children to discover that even though Pepe and Maritza see the guitars differently there are still the same number of guitars.
5. Explain the drawings, show as sets, with the numerals representing those sets.
6. Explain that the same information can be shown using a number line.

FIRST
ACTIVITY
FOR
SKILL F
(CONTINUED)

7. Give more examples of the commutative property of addition by using classroom objects and their respective numeral equation.

EXAMPLE:



$$1 + 6 = 7$$

so $1 + 6 = 6 + 1$

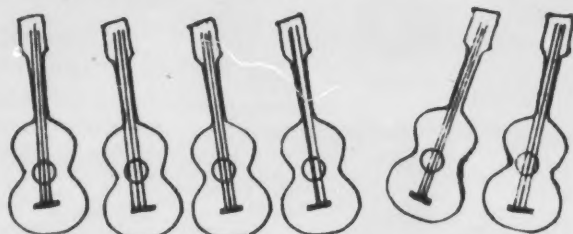
$$6 + 1 = 7$$

8. After several examples have been given, proceed to tell the children that this is the commutative property of addition.

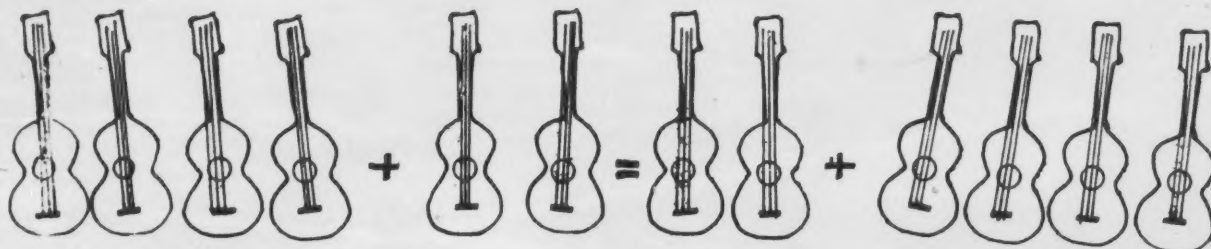
Propiedad conmutativa



Maritza miró y vió
4 + 2 guitarras.



Pepe miró y vió
2 + 4 guitarras



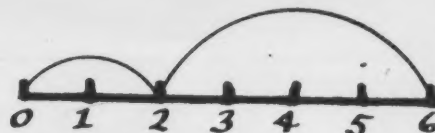
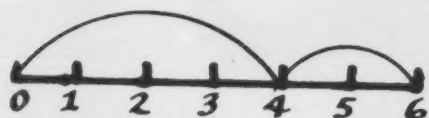
$$4 + 2 = 2 + 4$$

$$6 = 6$$

Maritza vió que habían seis
guitarras por todo.

Pepe vió que habían seis
guitarras todo.

Lo que vió Maritza = lo que vió Pepe
pero en diferente orden



No importa el orden de sumar
dos números siempre la suma es =.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT II: PUERTO RICO

SECOND
ACTIVITY
FOR
SKILL F

Make a worksheet with the following types of exercises to improve their understanding of the commutative property of addition.

RESUELVE LOS EJERCICIOS

I.

A.

B.

$4 + 5 = \boxed{}$

$5 + 4 = \boxed{}$

$3 + 6 = \boxed{}$

$6 + 3 = \boxed{}$

$1 + 7 = \boxed{}$

$7 + 1 = \boxed{}$

$8 + 2 = \boxed{}$

$2 + 8 = \boxed{}$

II.

$\text{Si } 4 + 5 = 9 \text{ entonces } 5 + 4 = \boxed{}$

$\text{Si } 3 + 6 = 9 \text{ entonces } 6 + 3 = \boxed{}$

$\text{Si } 1 + 7 = 8 \text{ entonces } 7 + 1 = \boxed{}$

$\text{Si } 8 + 2 = 10 \text{ entonces } 2 + 8 = \boxed{}$

SECOND
ACTIVITY
FOR
SKILL F
(CONTINUED)

III. RESUELVE

$$4 + 5 = 5 + \underline{\quad}$$

$$3 + 6 = \underline{\quad} + 3$$

$$\underline{\quad} + 7 = 7 + 1$$

$$8 + \underline{\quad} = 2 + 8$$

IV. RESUELVE

- A. Marisel se comió 3 mayorcas y 4 pastelillos.
Olga se comió 4 pastelillos y 3 mayorcas.
¿Cuántos dulces comió Marisel por todo?
¿Cuántos dulces comió Olga por todo?
- B. Rodomes vió 2 estrellas demor y 7 caracoles.
Carmelo vió 7 caracoles y 2 estrellas de mar.
¿Cuántas cosas del mar vió Radomés por todo?
¿Cuántas cosas del mar vió Carmelo por todo?
- C. Angel jugó Pase-mí-sin 8 veces y al esconder 1 vez.
Lourdes jugó al esconder 1 vez y Pase-mí-sin 8 veces.
¿Cuántos juegos jugó Angel por todo?
¿Cuántos juegos jugó Lourdes por todo?

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT II: PUERTO RICO

SKILL G: Understanding the associative property of addition.

VOCABULARY:	associative property	"propiedad asociativa"
	parentheses	"paréntesis"
	column addition	"suma en columna"
	equal	"igual"

FIRST
ACTIVITY
FOR
SKILL G

Using the following information sheet either as a transparency or a handout, explain the associative property of addition in the following way:

1. Read and discuss the word problem at the beginning and make sure all students understand it.
2. Explain the drawings listed under A. Have children add the lollipops with candies first, and then add the pieces of gum. Next, add the numerals under the candies. Explain that the parentheses (teach word) tells us which numbers we add first.
3. Explain the drawing listed under B. Have the children add the candies and the pieces of gum first, and then add the lollipops. Next, add the numerals under the candies, explaining that the parentheses tell which numbers we add first.
4. Ask the children to add the numerals in A. and B. Ask them if they get the same answer. Help them to discover that even though the numbers were added differently, the sums will be the same.

FIRST
ACTIVITY
FOR
SKILL G
(CONTINUED)

5. **Show** how each equation can be demonstrated on the number line.
6. After several examples have been given using classroom objects, proceed to tell the children that what they have been doing is the associative property of addition which means that addends can be grouped differently to get the same sum.

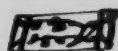
Propiedad asociativa de suma

Problema:

Israel, Isabel y Tomás compraron dulces.

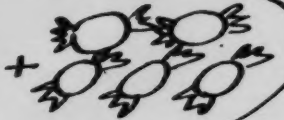
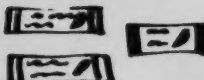
Israel, compró 2 paletas .

Isabel compró 5 bombones .

Tomás compró 3 pedazos de goma de mascar .

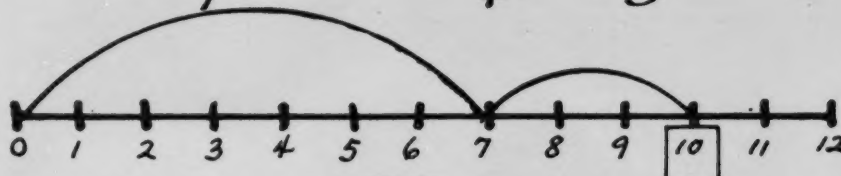
¿Cuántos dulces compraron por todo?

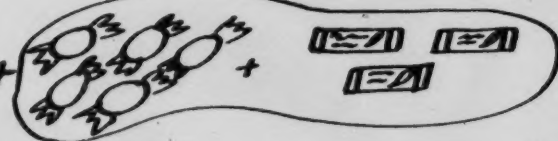
Dos formas de sumarlo.

A.  +  + 

$$(2 + 5) + 3 = \boxed{}$$

$$7 + 3 = \boxed{10}$$



B.  + 

$$2 + (5 + 3) = \boxed{}$$

$$2 + 8 = \boxed{10}$$



$$(2 + 5) + 3 = 2 + (5 + 3)$$

SECOND
ACTIVITY
FOR
SKILL G

Prepare a worksheet with the following types of exercises to develop the students' understanding of the associative property of addition.

Estudia el ejemplo y resuelve los demas problemas de igual forma.

PROBLEMA: Las niñas fueron a la biblioteca. Juanita sacó 3 libros, Glenda sacó 3 libros y Margot sacó 4 libros. ¿Cuántos libros sacaron por todo?

Hacer la suma de los dibujos

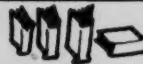
Sumar los números entre paréntesis primero

SUMAR

RESULTADO

FORMA A.

FORMA B.

 +  +  =  +  + 
$(3 + 3) + 4 = 3 + (3 + 4)$
$6 + 4 = 3 + 7$
$10 = 10$

Contestar preguntas.

Las niñas sacaron _____ libros de la biblioteca. ¿Se llegó al mismo número de libros aunque se sumaron de diferente forma?

☐ SI

☐ NO

SECOND ACTIVITY FOR SKILL G (CONTINUED)

I. PROBLEMAS:

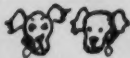
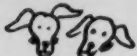
- A. En el hospital de animales una perra tuvo 2 perritos, una gata tuvo 3 gatitos y una mona tuvo 1 monito. ¿Cuántos bebés nacieron por todo?

Dibujos

Escribe los
números y suma
los paréntesis

SUMA

RESULTADO

	+		+		=		+		+					
(		+		)	+		=		+	(		+		)
					+		=							
							=							

En el hospital nacieron _____ bebés.

SECOND ACTIVITY FOR SKILL G (CONTINUED)

- B. Un doctor compró 1 piragüa. Un bombero tuvo mucho sed despues de apagar un fuego y compró 5 piragüas. Un policía tuvo sed despues de dirigir el tráfico y compró 3 piragüas. ¿Cuántas piragüas compraron por todo?

Dibujos

Escribe los números y suma los parentesis

SUMA

RESULTADO

	+		+		=		+		+	
(	+		)	+	=	+	(		+	)
		+			=			+		
					=					

Los hombres compraron _____ piragüas.

SECOND ACTIVITY FOR SKILL G (CONTINUED)

- C. Tres personas buscaran jarros. El Sr. Román buscó 3 jarros. El Sr. Cruz buscó 2 jarros. La Sra. Rivera buscó 4 jarros. ¿Cuántos jarros buscaron las personas?

Hago los dibujos

Escribe los números suma
los parentesis

SUMA

RESULTADO

	+		+	=		+		+
(	+	)	+	=	+	(	+	)
			+	=			+	
				=				

Las personas buscaron _____ jarros.

SECOND ACTIVITY FOR SKILL G (CONTINUED)

- D. En el mercado de frutas, los niños se comieron 2 guineos.
 Las señoras se comieron 3 guineos y los señores se comieron
 3 guineos. ¿Cuántos guineos se comieron por todo?

Haga los dibujos

Escribe los números y
 suma los parentesis.

SUMA

RESULTADO

Por todo, se comieron _____ guineos.

SECOND ACTIVITY FOR SKILL G (CONTINUED)

II. SUMA:

$$1. \quad (9 + 1) + 2 = \square$$

$$\quad \quad \quad + 2 = \square$$

$$2. \quad 6 + (4 + 1) = \square$$

$$6 + \quad = \square$$

$$3. \quad (2 + 3) + 4 = \square$$

$$4. \quad (3 + 5) + 2 = \square$$

$$5. \quad (1 + 3) + 5 = \square$$

$$6. \quad \text{Si } (5 + 2) + 2 = \square, \text{ entonces } 5 + (2 + 2) = \square$$

$$7. \quad \text{Si } (6 + 1) + 3 = \square, \text{ entonces } 6 + (1 + 3) = \square$$

$$8. \quad \text{Si } (3 + 1) + 8 = \square, \text{ entonces } 3 + (1 + 8) = \square$$

$$9. \quad \text{Si } (5 + 4) + 2 = \square, \text{ entonces } 5 + (4 + 2) = \square$$

$$10. \quad \text{Si } (8 + 2) + 2 = \square, \text{ entonces } 8 + (2 + 2) = \square$$

$$9 + (1 + 2) = \square$$

$$9 + \quad = \square$$

$$(6 + 4) + 1 = \square$$

$$\quad + 1 = \square$$

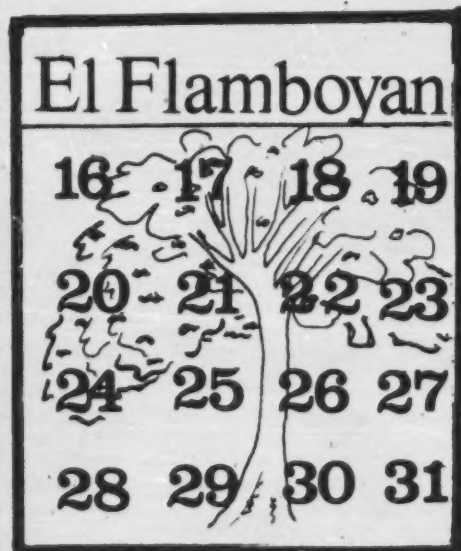
$$2 + (3 + 4) = \square$$

$$3 + (5 + 2) = \square$$

$$1 + (3 + 5) = \square$$

THIRD ACTIVITY FOR SKILL G

Play the guessing game, "El Adivinador."
Using the number boxes on this page, ask a student to think of a number from 1 to 31, and to name the boxes it appears in. The person who is going to guess will then add silently the first number of each of those boxes. By doing this, he/she will get the number which was thought up in the beginning. You can guess birth days, months of the year, ages (not over 31) and other things that can be stated in numbers.



MATHEMATICS CURRICULUM FOR GRADE THREE

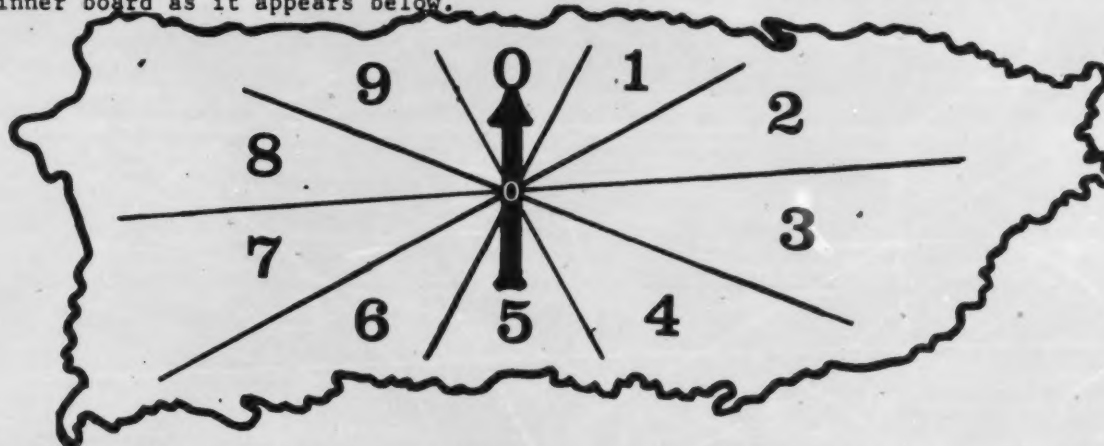
UNIT II: PUERTO RICO

SKILL H: Understanding and practicing column addition of three addends.

NOTE: Column addition naturally follows any practice with the associative property.

**FIRST
ACTIVITY
FOR
SKILL H**

Introduce column addition by playing the game, "Let's Spin Around Puerto Rico." Make the spinner board as it appears below.



Spin the spinner three times and have the children add the three numbers. This game can be played with pairs, small groups or a large group. Teams can be formed and a score can be kept if the teacher so desires.

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FIRST ACTIVITY FOR SKILL H (CONTINUED)

"LET'S SPIN AROUND PUERTO RICO" (CONTINUED)

When playing the game, the following column addition skills should be developed using the chalkboard.

1. If the children are adding $3 + 4 + 2$ (in a column) have the children add two numbers first, then have them add the other number.
2. Encourage the children to find two numbers that add up to 10 in the problem. Have them add those two numbers first, and then add the other number. This should make the problem simpler to solve. See the examples.

$$\begin{array}{r} 5 \\ 5 \\ + 4 \\ \hline 14 \end{array}$$

Diagram: A bracket on the right side of the first two numbers (5 and 5) points to the number 10, indicating they are added first.

$$\begin{array}{r} 6 \\ 4 \\ + 3 \\ \hline 13 \end{array}$$

Diagram: A bracket on the right side of the first two numbers (6 and 4) points to the number 10, indicating they are added first.

$$\begin{array}{r} 7 \\ 1 \\ + 3 \\ \hline 11 \end{array}$$

Diagram: A bracket on the right side of the first two numbers (7 and 1) points to the number 10, indicating they are added first.

$$\begin{array}{r} 2 \\ 6 \\ + 8 \\ \hline 16 \end{array}$$

Diagram: A bracket on the right side of the first two numbers (2 and 6) points to the number 10, indicating they are added first.

$$\begin{array}{r} 1 \\ 9 \\ + 9 \\ \hline 19 \end{array}$$

Diagram: A bracket on the right side of the first two numbers (1 and 9) points to the number 10, indicating they are added first.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT II: PUERTO RICO

SECOND
ACTIVITY
FOR
SKILL H

Develop a worksheet with the following types of exercises.

WORKSHEET

I. Suma:

	<u>A.</u>	<u>B.</u>	<u>C.</u>	<u>D.</u>	<u>E.</u>
1.	2	5	7	6	2
	4	4	2	2	6
	+ 5	+ 2	+ 5	+ 4	+ 7
2.	4	5	6	3	5
	9	3	4	4	3
	+ 2	+ 5	+ 6	+ 7	+ 6

II. Lee y resuelve:

A. Heriberto tiene 3 chiringas.

Samuel tiene 4 chiringas.

Mabel tiene 6 chiringas.

¿Cuántas chiringas tienen por todo?

B. Gregorio vió 6 juegos de pelota el año pasado.

Ana vió 3 juegos y Wanda vió 7 juegos.

¿Cuántas juegos vieran por todo?

SKILL I: Computation of subtraction facts.

VOCABULARY:

subtract

left

minus

number line

"restar"

"izquierda"

"menos"

"recta numérica"

FIRST
ACTIVITY
FOR
SKILL I

Using the students as the children in the following story problem, explain the relationship of the following steps in the subtraction process.

En la fiesta habían 8 niños.
Cinco niños se fueron a dormir.
¿Cuántos niños se quedaron?

Niños en la fiesta



se quedaron



se fueron

MATHEMATICS CURRICULUM FOR GRADE THREE

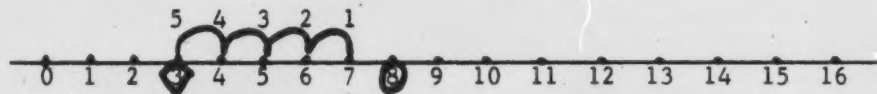
UNIT II: PUERTO RICO

FIRST
ACTIVITY
FOR
SKILL I
(CONTINUED)

8 niños en la fiesta.
- 5 niños que se fueron.

3 niños que se quedaron.

Explain that when subtracting on the number line you move to the left.



Find the first number (8). Count to the left the number of spaces represented by the second number (5). The number that is reached is the difference (3).

SECOND
ACTIVITY
FOR
SKILL I

Give several more concrete examples of the first activity using different things or people in the room or the school.

THIRD
ACTIVITY
FOR
SKILL I

Have the students solve the story problems following the first example. You can make more problems of the same kind, if so desired.

I. Resuelve estos problemas. Fíjate en el ejemplo.

*Ejemplo: Samuel se ganó 7 cintas. Se le perdió 1 cinta.
¿Cuántas cintas le quedan?*

Dibuja el problema

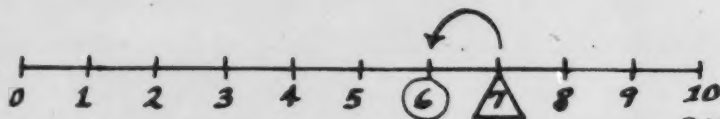


*Llena los
espacios*

$$\begin{array}{r} 7 \text{ cintas que ganó} \\ - 1 \text{ cintas se perdió} \\ \hline 6 \text{ cintas que le quedan} \end{array}$$

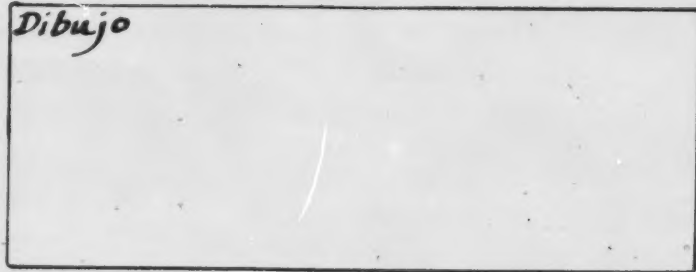
$$\boxed{7} - \boxed{1} = \boxed{6}$$

*Representalo en
la recta numérica*



1. Johnny tiene 9 globos. 
Se le rompieron 6 de ellos.
¿Cuántos globos le quedaron?

Dibujo



Llena los espacios

— globos que tenía
— globos que se rompieron
— globos que le quedaron

$$\square - \square = \square$$

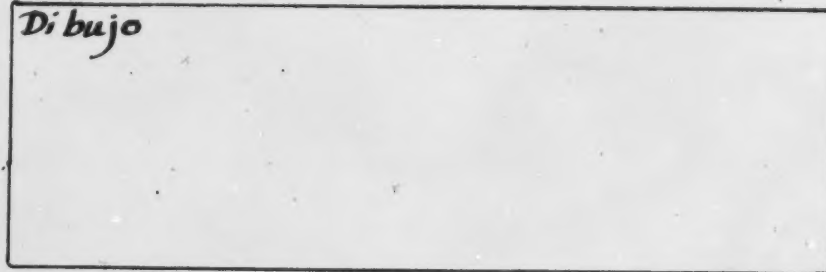
Recta numérica



252

2. Habían 12 carros en el estacionamiento.
Por la tarde se llevaron 6 carros.
¿Cuántos carros quedaron? 

Dibujo



Llena los espacios

— carros que habían
— carros que se llevaron
— carros que quedan

$$\square - \square = \square$$

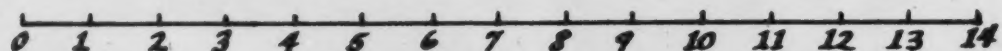
Recta numérica



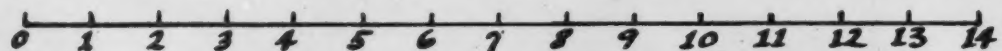
253

II. Resta y represéntalo en la recta numérica.

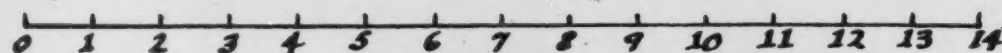
$$11 - 8 = \square$$



$$8 - 6 = \square$$



$$10 - 5 = \square$$



$$\begin{array}{r} 13 \\ - 5 \\ \hline \end{array}$$



$$\begin{array}{r} 9 \\ - 4 \\ \hline \end{array}$$



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III. Resta

$$8 - 5 = \square$$

$$15 - 8 = \square$$

$$12 - 4 = \square$$

$$18 - 9 = \square$$

$$13 - 9 = \square$$

$$9 - 6 = \square$$

$$\begin{array}{r} 7 \\ - 5 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ - 4 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ - 5 \\ \hline \end{array}$$

$$\begin{array}{r} 12 \\ - 7 \\ \hline \end{array}$$

$$\begin{array}{r} 13 \\ - 6 \\ \hline \end{array}$$

$$\begin{array}{r} 14 \\ - 8 \\ \hline \end{array}$$

$$\begin{array}{r} 15 \\ - 7 \\ \hline \end{array}$$

$$\begin{array}{r} 16 \\ - 8 \\ \hline \end{array}$$

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MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT II: PUERTO RICO

THIRD
ACTIVITY
FOR
SKILL I

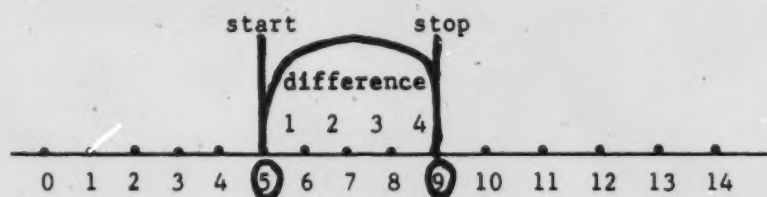
If some children have difficulty subtracting you can teach them to count up from the small number to the large number, and that would be the difference.

FOR EXAMPLE:
$$\begin{array}{r} 9 \\ - 5 \\ \hline \end{array}$$

Keeping in mind the large number (9) count up from the small number (5) to the large number in this way:

. . . 6, 7, 8, 9.

The number of numerals counted would be the difference.



In the number line the spaces between both numbers would be the difference.

SKILL J: Solving story problems using simple addition or subtraction.

VOCABULARY:

How much
in all
together
all together

"Cuánto"
"por todo"
"juntos"
"todos juntos"

} important
addition
words or
phrases.

How much is left?
How much more?
How much less?
How much bigger,
smaller, faster,
slower, etc.?

"¿Cuánto queda?"
"¿Cuánto más?"
"¿Cuánto menos?"
"¿Cuánto más,
grande, pequeño,
etc.?"
"¿Cuánto sobró?"

} important
subtraction
words
or
phrases.

NOTE: Story problems will be introduced throughout the whole curriculum whenever appropriate. At this point, the authors think it is valuable to introduce and give special recognition to words or word phrases which are common to a high percentage of Addition and Subtraction story problems. If children can become familiar with the words, it will be a help in aiding the students to decide which operation they should use to solve the problem.

**FIRST
ACTIVITY
FOR
SKILL J**

Lead a class discussion in which the students are going to pick out the above listed important words from story problem examples given by the teacher. Involve students in the story problem. For example, give 5 pencils to Rafael and 6 pencils to Andrés. Then ask the question: ¿Cuántos lapices tienen los muchachos por todo?

The children will be able to answer the question.

Ask the children if they added or subtracted to get the answer. They will answer they added. Next, repeat the question again, emphasizing the words "por todo." Ask the children what words helped to tell them that they must add to answer the question. They should answer "por todo." Also, ask the class what other words they could use that would mean "por todo." Prepare a poster board as shown below and write on the poster board "Cuantos and por todo."

NOTE: The poster board can be hung in the room with most of the important addition and subtraction words listed so the children can refer to it whenever they are doing story problems.

* * * * *

PALABRAS IMPORTANTES PARA SUMAR

1. Por todo
2. juntos
3. todos juntos
4. En total, etc. . .

Repeat the whole process with another problem using different important words.
For example:

En este clase hay 15 niños y 13 niñas. Juntos,
¿cuántos niños hay?

FIRST
ACTIVITY
FOR
SKILL J
(CONTINUED)

After all the addition words have been picked out and listed on the poster board, do the same thing with the important subtraction words. For example, give Ramonita 15 cents. Have her buy a pencil that costs 8 cents. Ask the question: ¿Cuántos centavos le quedan a Ramonita?

The children will answer "7 centavos."

Ask them how they solved the problem, by adding or subtracting.

Repeat the question emphasizing "quedan."

Ask the children what words helped to tell them that they must subtract to answer the question.

Write the words on the poster board as shown below.

PALABRAS IMPORTANTES PARA RESTAR

1. cuánto quedan
2. cuánto sobró
3. cuánto más
4. cuánto menos

When doing this activity, emphasize that those "key words" or "palabras importantes" will help them in deciding whether they should add or subtract to solve the problem.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT II: PUERTO RICO

SECOND
ACTIVITY
FOR
SKILL J

Prepare a worksheet or worksheets as shown below. In this written exercise, the children will do 3 things with each story problem.

First, they will draw a circle around each important word.

Second, they will add or subtract to solve the problem.

Third, they will write a complete sentence for each answer to the problem.

The first worksheet may be done together, with the teacher writing the answers on the board. But with each successive exercise, the teacher would give a decreasing amount of assistance.

Resuelve los problemas.

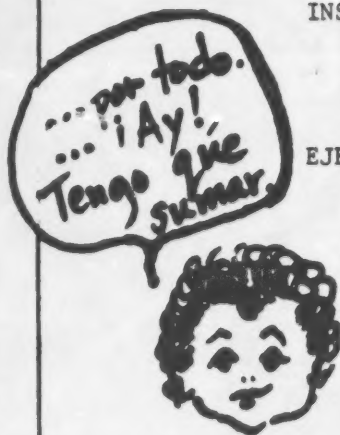
- INSTRUCCIONES:
1. Haga un dibujo alrededor de la palabra importante.
 2. Suma or resta para resolver el problema.
 3. Escribe una oración completa contestando la pregunta.

EJEMPLO:

Adrian y Joselito fueron a pescar en la Bahía de San Juan.
Adrian pescó 6 peces. Joselito pescó 9 peces. ¿Cuántos peces
pescaron los muchachos por todo?

$$6 + 9 = 15$$

Adrian y Joselito pescaron 15 peces.



SECOND ACTIVITY FOR SKILL J (CONTINUED)

STORY PROBLEM WORKSHEET (CONTINUED)

1. Las hermanas Yolanda y Ana Luz fueron a Mayagüez para recoger mangos. Yolanda recogió 8 docenas. Ana Luz recogió 4 docenas. Juntas, ¿cuántas docenas recogieron?
2. La mamá de Elsie preparó 18 pasteles. Elsie se comió 9 de los pasteles. ¿Cuántos pasteles sobraron?
3. Paso una camión que llevaba caña. Pedrito arrancó 7 pedazos de caña y Pepe arrancó 5 pedazos. ¿Cuántos pedazos de caña arrancaron los muchachos por todo?
4. Carmen y Maritza participaron en el Día de Juegos de su escuela. En el salto largo, Carmen brincó 12 pies. Maritza brincó 9 pies. ¿Cuánto más brincó Carmen que Maritza?
5. El papá de Marisol y Antonio se pegó en la lotería. Le dió 8 dólares a cada uno. ¿Cuánto dinero recibieron los niños por todo?
6. En carro público, Mariana viajó de Farjardo hasta Aquadilla. El viaje de ida duró 6 horas. Pero el viaje de vuelta duró solamente 4 horas. ¿Cuánto menos duró el viaje de vuelta que de ida?

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

- SKILL A: Counting by 2's to 100.
- SKILL B: Counting from 1 to 1000.
- SKILL C: Working with place value to the thousands.
- SKILL D: Column addition with no regrouping.
- SKILL E: Adding multiples of ten.
- SKILL F: Adding a two digit number to a one digit number with no regrouping.
- SKILL G: Adding two digit numbers with no regrouping.
- SKILL H: Adding three digit numbers with no regrouping.
- SKILL I: Relating addition to subtraction.
- SKILL J: Subtracting a one digit number from a two digit number with no regrouping.
- SKILL K: Subtracting a two digit number from a two digit number with no regrouping.
- SKILL L: Subtracting three or four digit numbers with no regrouping.

SKILL A: Counting by 2's to 100.

VOCABULARY: even numbers to 100

FIRST
ACTIVITY
FOR
SKILL A

As a daily drill have the children maintain a rhythm by hitting thighs, clap, thighs, clap, etc. Start counting 1 on thighs, 2 on clap, 3 on thighs, 4 on clap . . . The number on the clap should be said normally and the numbers on the thighs whispered. The whisper should be omitted as children realize what the sequence is. (This can be adapted to other body movements.)

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

SECOND
ACTIVITY
FOR
SKILL A

Following Activity One, have the children X or color in the whispered number.

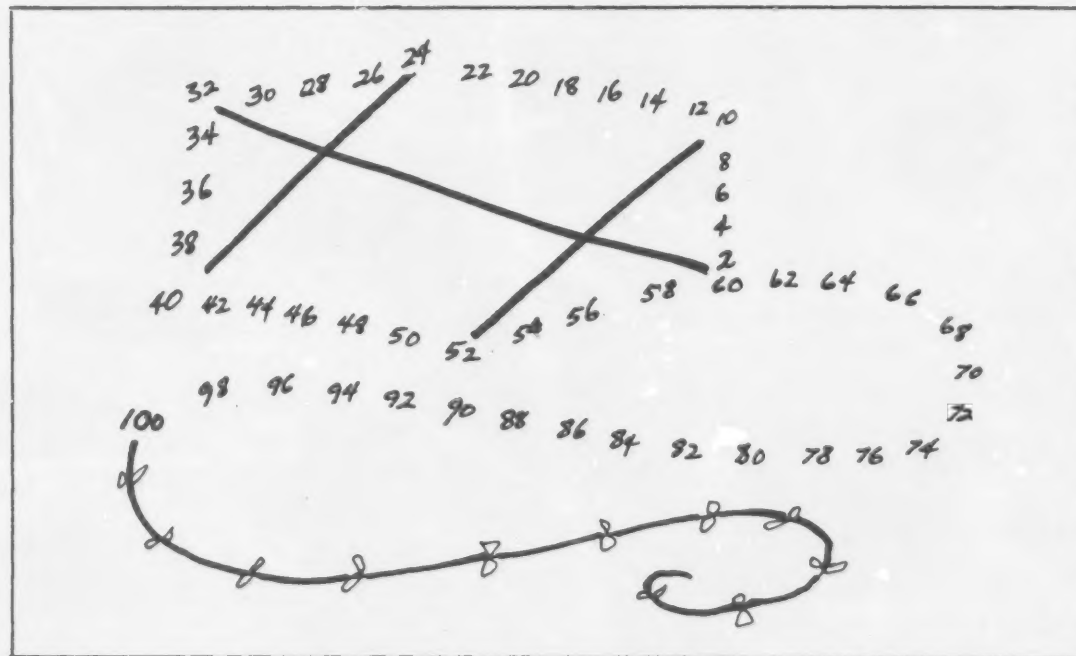
Marca con una X los números que has dicho en voz baja:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100					

THIRD
ACTIVITY
FOR
SKILL A

Counting by 2's have children write the numbers on a blank piece of paper forming a design they prefer. The paper can be colored in after it has been corrected.

EXAMPLE:



MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III:

SKILL B: Counting from 1 to 1000.

VOCABULARY:

one hundred	"cien"
two hundred	"docientos"
three hundred	"trescientos"
four hundred	"cuatrocientos"
five hundred	"quinientos"
six hundred	"seiscientos"
seven hundred	"setecientos"
eight hundred	"ochocientos"
nine hundred	"novecientos"
one thousand	"mil"

FIRST
ACTIVITY
FOR
SKILL B

Students can make collections of different things (bottle caps, leaves, sticks, buttons) and count them each day until they get to 1000.

The collections can be exhibited as sets of 1000.

SECOND
ACTIVITY
FOR
SKILL B

Practice counting to 1000 by hundreds to the rhythm of jumping ropes or bouncing a ball.

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THIRD
ACTIVITY
FOR
SKILL B

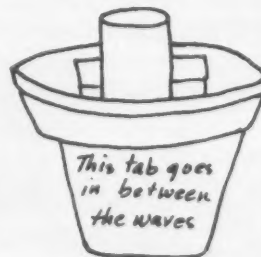
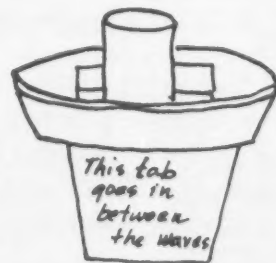
Play the game, "Cruzando el Canal de Panamá."

Materials:

GAME BOARD
(Color each
strip a
different
color.)



DIFFERENT
COLOR
SHIPS



100 Cards With Numbers 0 to 99

32 0 8 98

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

THIRD
ACTIVITY
FOR
SKILL B
(CONTINUED)

PROCEDURE:

Each player has a different color ship to cross the canal. Taking turns, move the ship one strip at a time. After lining up the chimney on the first strip pick a number card, then using the number on your strip as hundreds read the complete number with the card selected. If the number is not read correctly you stay on that strip for your next turn and try again. You cannot move to the next strip until you have read the number correctly. The first player to cross the canal wins the game. (The game can start at either side.)

SKILL C: Working with place value to the thousands.

VOCABULARY:

ones
tens
hundreds
thousands
blocks
dot
line
square
cube
standard numeral

"unidades"
"decenas"
"centenas"
"millares"
"bloques"
"punto"
"línea"
"cuadrado"
"cubo"
"numeral correspondiente"

FIRST
ACTIVITY
FOR
SKILL C

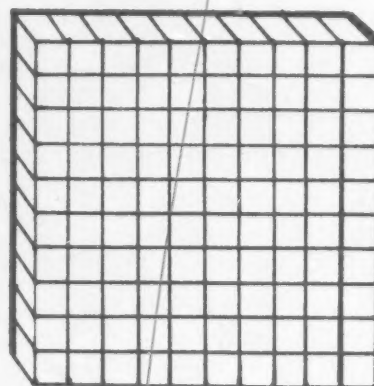
BASE TEN BLOCKS



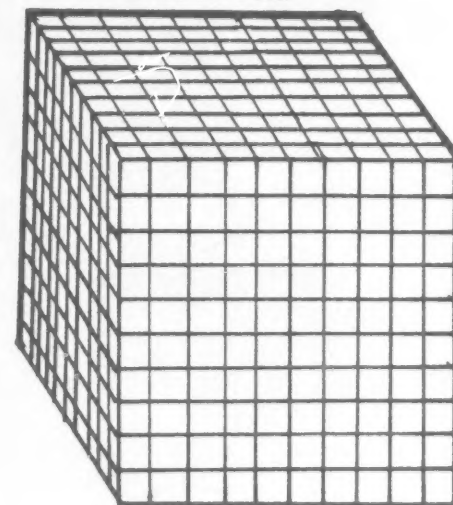
tens



hundreds



thousands



282

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MATHEMATICS CURRICULUM FOR GRADE THREE

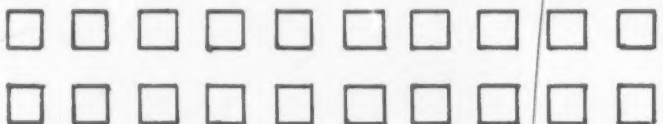
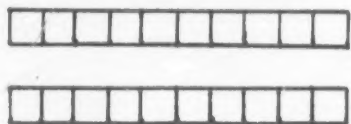
UNIT III: LATIN AMERICA

FIRST
ACTIVITY
FOR
SKILL C
(CONTINUED)

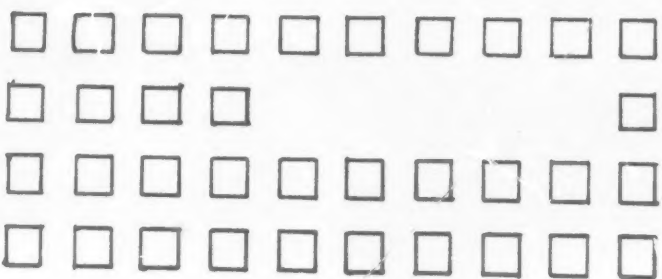
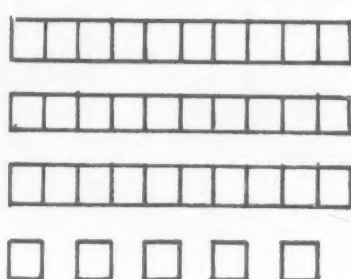
Using the base ten blocks have the students manipulate them. Help them discover that ten ones () make one ten ().

Giving the students a certain number of ones, ask them to group these into as many tens as possible. Do this several times.

EXAMPLES:

1.  

$$20 \text{ ones} = 2 \text{ tens } 0 \text{ ones}$$

2.  

$$35 \text{ ones} = 3 \text{ tens } 5 \text{ ones}$$

FIRST
ACTIVITY
FOR
SKILL C
(CONTINUED)

Do the following written exercises:

I. Completa

- | | | | | | |
|----|---------------|-------------|---------|-------------|-----------|
| A. | 17 unidades = | <u>1</u> | decenas | <u>7</u> | unidades. |
| B. | 44 unidades = | <u> </u> | decenas | <u> </u> | unidades. |
| C. | 70 unidades = | <u> </u> | decenas | <u> </u> | unidades. |
| D. | 30 unidades = | <u> </u> | decenas | <u> </u> | unidades. |
| E. | 28 unidades = | <u> </u> | decenas | <u> </u> | unidades. |

II. ¿Cuántas unidades hay en . . .

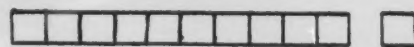
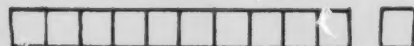
- | | | | |
|----|-------------|-------------|----------|
| A. | 5 decenas? | <u> </u> | unidades |
| B. | 8 decenas? | <u> </u> | unidades |
| C. | 10 decenas? | <u> </u> | unidades |
| E. | 9 decenas? | <u> </u> | unidades |
| F. | 6 decenas? | <u> </u> | unidades |

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

SECOND
ACTIVITY
FOR
SKILL C

Explain how the number represented with the blocks can be shown as a standard numeral.



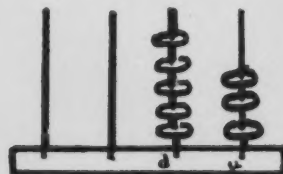
= 2 tens 3 ones = 23 (standard numeral)



(The blocks can be substituted for one abacus, popsicle sticks, straws or any other article that can be easily grouped into tens.)

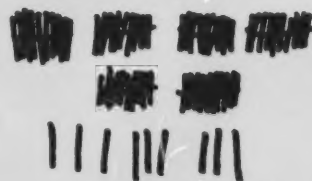
I. Escribe el numeral correspondiente para cada representación.

A.



=

B.



=

II. Escribe el numeral correspondiente.

A. 4 decenas 4 unidades = _____

B. 2 decenas 5 unidades = _____

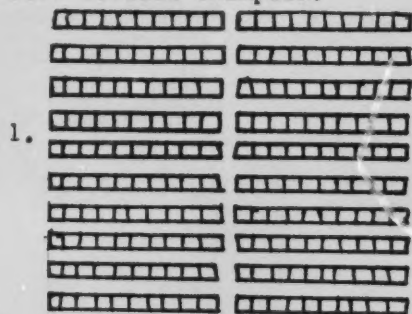
C. 1 decena 9 unidades = _____

D. 6 decenas 0 unidades = _____

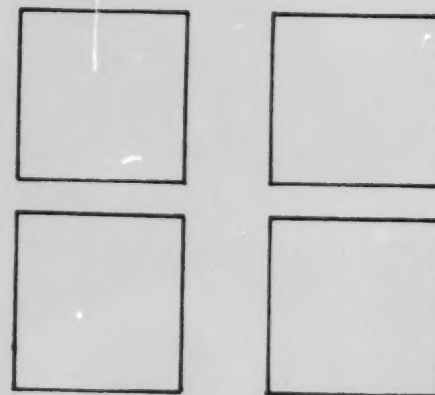
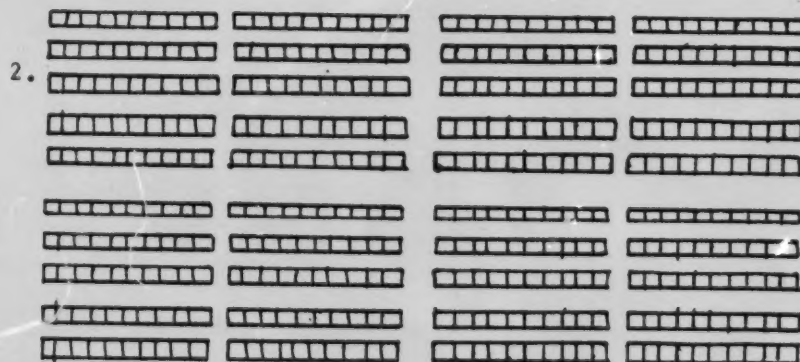
THIRD
ACTIVITY
FOR
SKILL C

Using the Base Ten Blocks, help the children discover that ten tens make one hundred

Give students a certain number of tens to group into as many hundreds as possible.
Give several examples:



20 tens = 2 hundreds 0 tens 0 ones



40 tens = 4 hundreds 0 tens 0 ones

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

THIRD
ACTIVITY
FOR
SKILL C
(CONTINUED)

Do the following written exercise.

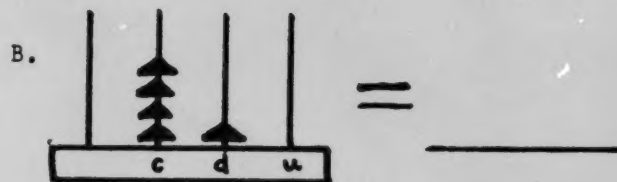
I. Completa.

- A. 40 decenas = _____ centenas
 B. 90 decenas = _____ centenas
 C. 70 decenas = _____ centenas
 D. 50 decenas = _____ centenas
 E. 80 decenas = _____ centenas

II. ¿Cuántas decenas hay en . . .

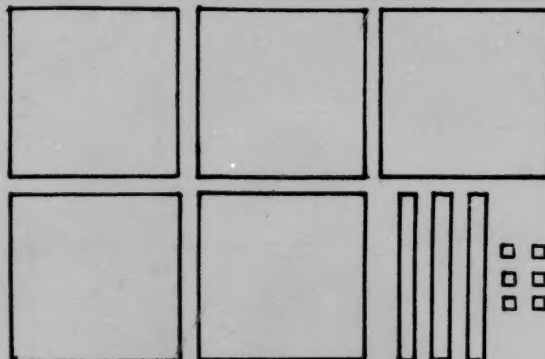
- A. 6 centenas? _____ decenas
 B. 1 centena? _____ decenas
 C. 5 centenas? _____ decenas
 D. 6 centenas? _____ decenas
 E. 2 centenas? _____ decenas

III. Escribe el numeral correspondiente.



THIRD
ACTIVITY
FOR
SKILL C
(CONTINUED)

C.



=

←

D. 3 centenas 3 decenas 2 unidades = _____

E. 1 centena 4 decenas 3 unidades = _____

F. 2 centenas 6 decenas 5 unidades = _____

G. 4 centenas 2 decenas 3 unidades = _____

H. 3 centenas 8 decenas 1 unidades = _____

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

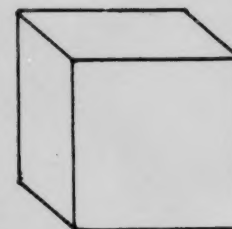
FOURTH
ACTIVITY
FOR
SKILL C

Using the hundreds and thousand blocks, help students discover that ten hundreds make one thousand.

1.

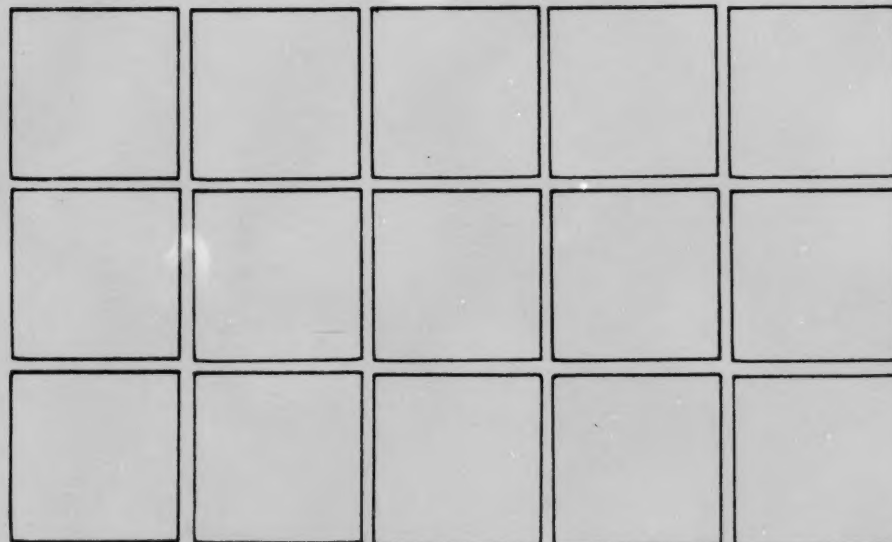


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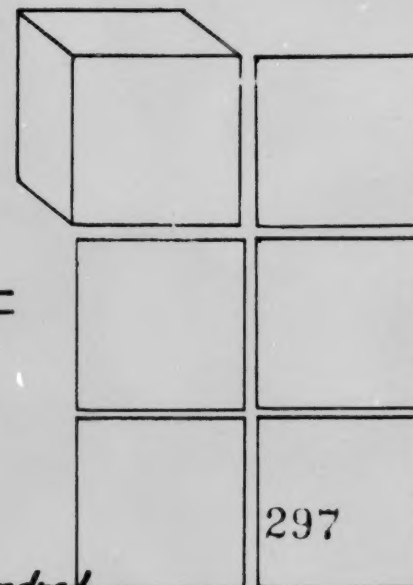


10 hundreds = 1 thousand 0 hundred

2.



=

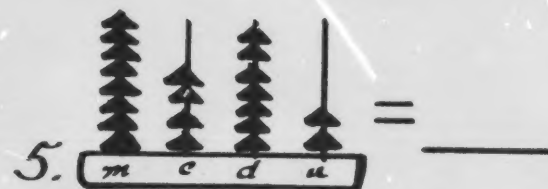
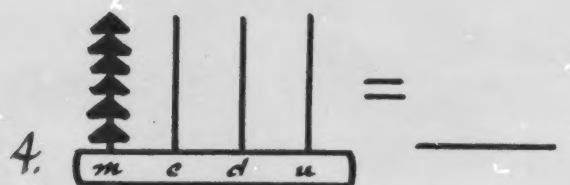
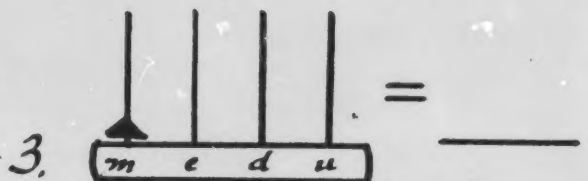
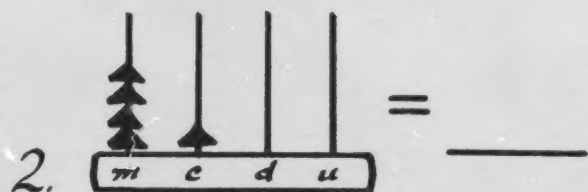
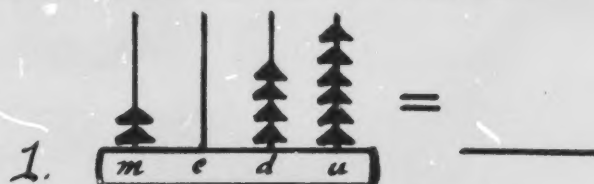


15 hundreds = 1 thousand 5 hundred

FOURTH
ACTIVITY
FOR
SKILL C
(CONTINUED)

Complete the following:

Escribe el numeral correspondiente.



MATHEMATICS CURRICULUM FOR GRADE THREE

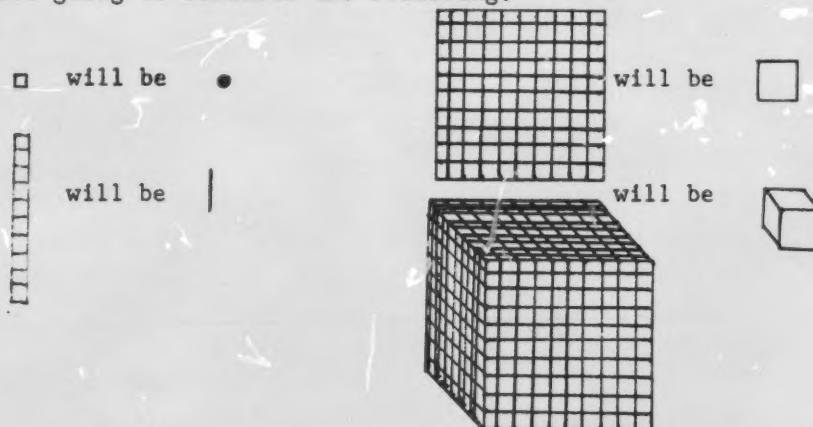
UNIT III: LATIN AMERICA

FIFTH
ACTIVITY
FOR
SKILL C

Showing the blocks in different ways ask:

1. What number is this?
2. How many ones, tens, hundreds, thousands?
3. Which is more?
4. Which is less?
5. Show me _____ with the blocks.
(number)
6. How many all together?
7. Take away _____. How many left?

Tell the children that in order to do the same thing on the chalkboard or on paper, they are going to remember the following:



SIXTH
ACTIVITY
FOR
SKILL C

The different types of exercises I, II, III, IV, V, increase in difficulty and should be given in that order. When reviewing tens and ones go through the complete set of exercises adapting them to tens and ones. Repeat the whole set when studying $\square, |, \cdot$'s, and again when studying $\square, \square, |, \cdot$'s.

I.

This line can
later have the
place value
names instead
of the symbols:
unidades
decenas
centenas
millares

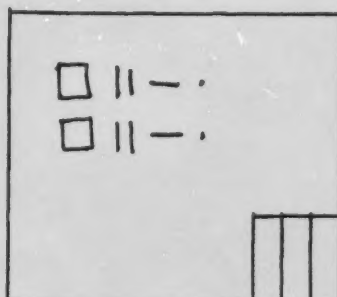
Escribe el número.		
		.
::	/	5
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.....		
≡ :		
= 		



302

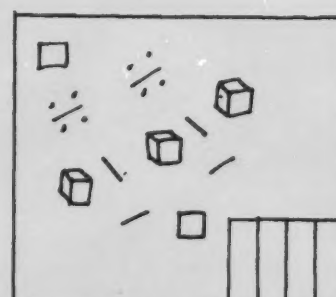
1.

Escribe el número.		
		.
□ ≡		
□ □ □ □ :		
≡ :: ::		
□ ≡		
□ □ □ □ ≡		



01.

Escribe el número.		
		.
□ □ □		
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001.

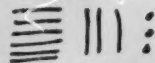
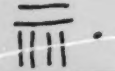
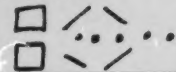
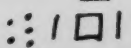
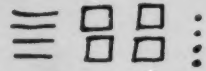
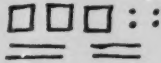
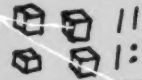
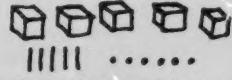
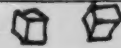
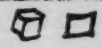
303

MATHEMATICS CURRICULUM FOR GRADE THREE

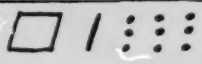
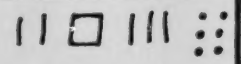
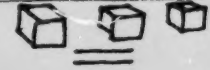
UNIT III: LATIN AMERICA

SIXTH ACTIVITY FOR SKILL C (CONTINUED)

II. Which is more (less)?
¿Cual es mayor (menor)?

¿CUAL ES MAYOR?	
	
	
	
	
	
	
	
	

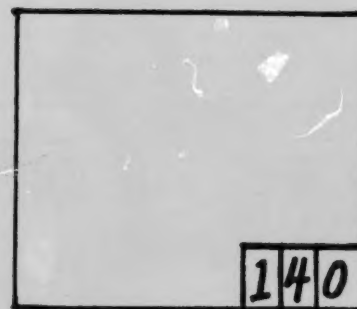
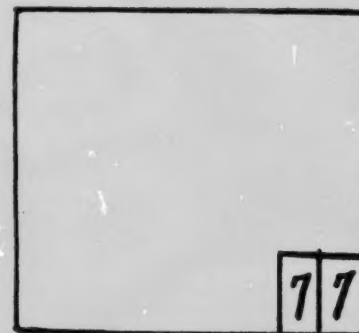
304

¿CUAL ES MENOR? < >	
48	1-1-::
11::	17
	219
153	
3021	
103	130
95	96
343	262

305

SIXTH ACTIVITY FOR SKILL C (CONTINUED)

III. Make the picture.
Haz el dibujo.



306

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MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

SIXTH ACTIVITY FOR SKILL C (CONTINUED)

IV. ¿Cuántos hay por todo?

	□	□	1	.
1: +			6	6
+				
+				
+				
+				
+				
+				

308

V. ¿Cuánto queda?

	□	□	1	.
A quitale 22			4	2
A quitale 34			4	4
A quitale 33				
A quitale 55				
A quitale 19				
A quitale 300				
A quitale 116				

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SKILL D: Column addition with no regrouping.

VOCABULARY:

addends
sum
column
vertical
horizontal

"sumando"
"suma"
"columnas"
"vertical"
"horizontal"

FIRST
ACTIVITY
FOR
SKILL D

Prepare three blank dice with the numbers 1 through 6 on each one. Throw the dice and ask the children how they can add these numbers. Lead them to conclude that the sum will be the same whichever numbers they add first.

Continue playing the game but this time show them how to write that sum in different ways.



2	2	4	4	1	1	2	+	4	+	1	=
1	4	2	1	2	4	4	+	1	+	2	=
+4	+1	+1	+2	+4	+2	1	+	2	+	4	=

Have the children play by themselves and show their computations on paper.

After students know how to add three addends, the teacher can make another set of three dice but with numbers 4 through 9 on them.

MATHEMATICS CURRICULUM FOR GRADE THREE

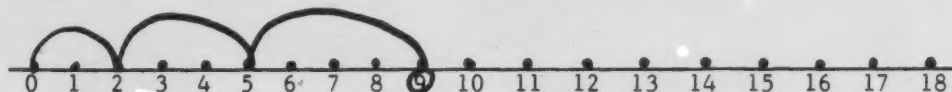
UNIT III: LATIN AMERICA

SECOND
ACTIVITY
FOR
SKILL D

Using the number line show students how to use it for column addition.

Give students a written exercise with three addend addition vertically or horizontally. Make a number line next to each problem for students to show the sum on it.

$$2 + 3 + 4 =$$



$$3 + 5 + 2 =$$



$$7 + 3 + 2 =$$



2

3

+4

—



3

5

+2

—



7

3

+2

—



312

313

THIRD
ACTIVITY
FOR
SKILL D

Have students solve the following story problems.

1. Fuimos a pescar.
Mi padre pescó 2 peces.
José pescó 3 peces.
Yo pesqué 4 peces.
¿Cuántos peces se pescaron en total?

2. Rosita tenía 4 tiestos en una ventana, 2 tiestos en otra ventana y 2 tiestos en el balcón.
¿Cuántos tiestos tenía por todo?

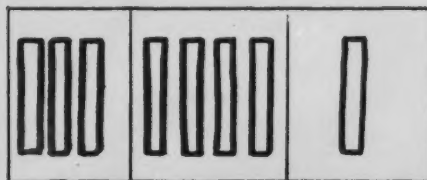
3. Ana le sirvió 1 taco a Juan 2 tacos a su papá y 2 tacos a Roberto.
¿Cuántos tacos sirvió Ana?

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

FOURTH
ACTIVITY
FOR
SKILL D

Using the Base Ten Blocks, arrange the tens in different bunches for children to add, three bunches at a time. If students can add $3 + 4 + 1$ then they can add:



$$3 \text{ tens} + 4 \text{ tens} + 1 \text{ ten} = 8 \text{ tens}$$

O R

$$30 + 40 + 10 = 80$$

O R

$$\begin{array}{r} 30 \\ 40 \\ +10 \\ \hline 80 \end{array}$$

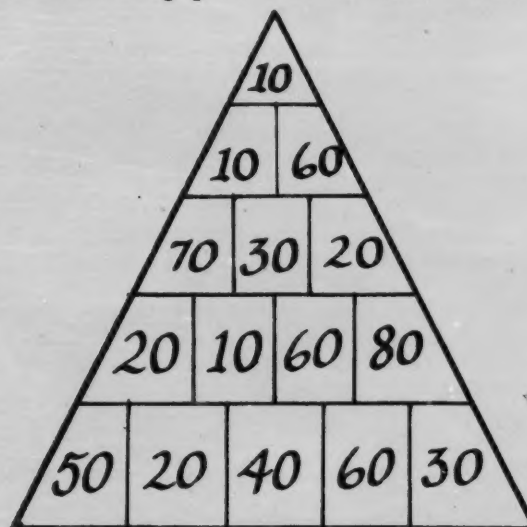
Follow the example in order to explain the transition from blocks to tens, to numbers and adding horizontally and vertically. Use as many practice problems as necessary.

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FIFTH
ACTIVITY
FOR
SKILL D

Prepare the following game on the floor with tapes or chalk.



Have each throw three bean bags and then find the sum.

318

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MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

SKILL E: Adding multiples of ten.

VOCABULARY: ones
tens

FIRST ACTIVITY FOR SKILL E Review counting by tens using the Base Ten Blocks, the number line or just the place value symbol for tens (1).

SKILL E Explain the relationship of the following addition sentences.

If $3 + 2 = 5$

Then $3 \text{ tens} + 2 \text{ tens} = 5 \text{ tens}$

And $30 + 20 = 50$

Or $2 \text{ tens} + 3 \text{ tens} = 5 \text{ tens}$

And $20 + 30 = 50$

FIRST
ACTIVITY
FOR
SKILL E
(CONTINUED)

Have the students work on examples such as the following:

6

+3

—

1

+4

—

5

+4

—

2

+6

—

6 decenas

+3 decenas

—

1 decenas

+4 decenas

—

5 decenas

+4 decenas

—

2 decenas

+6 decenas

—

60

+30

—

10

+40

—

50

+40

—

20

+60

—

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

SECOND
ACTIVITY
FOR
SKILL E

Play the bean bag game from Skill D., but this time with only two bean bags.

THIRD
ACTIVITY
FOR
SKILL E

Have the students solve the following story problems:

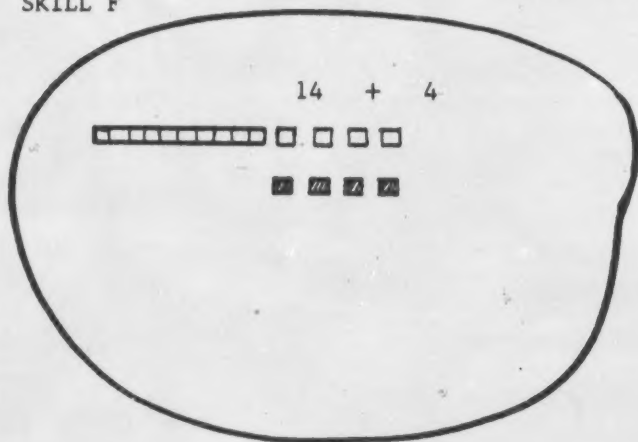
1. Tomás pesa 30 libras, Mérida pesa 30 libras y Pepito pesa 20 libras.
¿Cuántos libras pesan por todo?
2. Estando en Haití, Andrés recogió 10 plátanos, Melissa recogió 30 plátanos y Juan recogió 20 plátanos.
¿Cuántos plátanos recogieron en total?

SKILL F: Adding a two digit number to a one digit number with no regrouping.

VOCABULARY: addends
sum
tens
ones

**FIRST
ACTIVITY
FOR
SKILL F**

Using the Base Ten Blocks, review the expanded notation of two digit numbers. Be sure that students understand that in $21 + 3$, that 21 is $20 + 1$, and that 3 is added to 1. Illustrate other examples using the blocks.



$$\begin{aligned} 14 + 4 &= 10 + (4 + 4) \\ &= 10 + 8 \\ &= 18 \end{aligned}$$

OR

$$\begin{array}{r} 10 + 4 \\ + 4 \\ \hline 10 + 8 = 18 \end{array} \quad \text{OR} \quad \begin{array}{r} 1(4) \\ + (4) \\ \hline 18 \end{array}$$

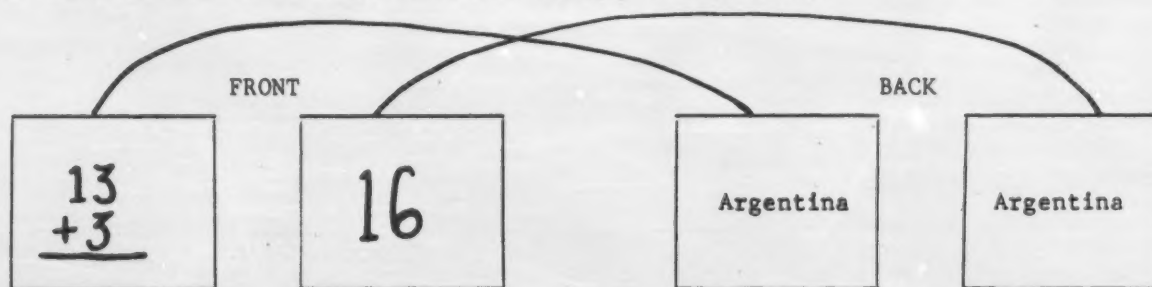
327

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SECOND
ACTIVITY
FOR
SKILL F

Play "Matching Sums and Countries."

Make 2 digit + 1 digit addition cards with the sums on another card. Each matching pair should have the same name of a Latin American country on the back;



After all of the cards are placed numbers facing up on a table players take turns by matching the addition problems with its sum. The cards are then turned over and if the countries match the answer is correct and the player keeps both cards giving the turn to the next player. The player with the most cards at the end wins the game.

SECOND
ACTIVITY
FOR
SKILL F
(CONTINUED)

Here are some examples that can be used for the game (the sums cannot be repeated).

$\begin{array}{r} 35 \\ +3 \\ \hline \end{array}$	$\begin{array}{r} 22 \\ +5 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ +5 \\ \hline \end{array}$	$\begin{array}{r} 10 \\ +4 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ +5 \\ \hline \end{array}$
$\begin{array}{r} 12 \\ +3 \\ \hline \end{array}$	$\begin{array}{r} 15 \\ +1 \\ \hline \end{array}$	$\begin{array}{r} 17 \\ +1 \\ \hline \end{array}$	$\begin{array}{r} 11 \\ +6 \\ \hline \end{array}$	$\begin{array}{r} 33 \\ +4 \\ \hline \end{array}$
$\begin{array}{r} 21 \\ +1 \\ \hline \end{array}$	$\begin{array}{r} 24 \\ +2 \\ \hline \end{array}$	$\begin{array}{r} 46 \\ +3 \\ \hline \end{array}$	$\begin{array}{r} 27 \\ +2 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ +2 \\ \hline \end{array}$
$\begin{array}{r} 20 \\ +1 \\ \hline \end{array}$	$\begin{array}{r} 44 \\ +5 \\ \hline \end{array}$	$\begin{array}{r} 22 \\ +2 \\ \hline \end{array}$	$\begin{array}{r} 21 \\ +2 \\ \hline \end{array}$	$\begin{array}{r} 44 \\ +4 \\ \hline \end{array}$
$\begin{array}{r} 31 \\ +5 \\ \hline \end{array}$	$\begin{array}{r} 37 \\ +2 \\ \hline \end{array}$	$\begin{array}{r} 58 \\ +1 \\ \hline \end{array}$	$\begin{array}{r} 53 \\ +2 \\ \hline \end{array}$	$\begin{array}{r} 54 \\ +3 \\ \hline \end{array}$

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MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

THIRD
ACTIVITY
FOR
SKILL F

Have the students solve the following story problems.

1. Susana contó 54 llamas en Perú y 5 llamas en Ecuador.
¿Cuántos llamas contó Susana en total?

2. Migdalia compró 73 quenepas y 2 piñas.
¿Cuántos frutas compró por todo?

3. Yolanda vió 21 torres de petroleo en el Lago Maracaibo y 6 torres en Columbia.
¿Cuántos torres de petroleo vió Yolanda?

SKILL G: Adding two digit numbers with no regrouping.

VOCABULARY:

addends

"sumando"

sum

"suma"

ones

"unidades"

tens

"decenas"

FIRST
ACTIVITY
FOR
SKILL G

Review the following place value exercise.

Suma las unidades y los decenas.

1.	: + ...	$\begin{array}{r} 14 \\ + 3 \\ \hline \end{array}$	1	•
2.	: + /...		1	7
3.	: + //...			
4.	: + ///...			
5.	: + ////...			
6.	: + ///// ...			
7.	: + /// ≡ ...			
8.	: + /// // /...			
9.	: + /// /// .:			

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

FIRST
ACTIVITY
FOR
SKILL G
(CONTINUED)

After finishing the preceding exercise, the students should write each illustrated problem in numbers in the space provided next to the drawings. Observe and discuss the relationships.

$$\begin{array}{r} 1. \quad 14 \\ +3 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 14 \\ +13 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 14 \\ +23 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 14 \\ +33 \\ \hline \end{array}$$

NOTE: Always add ones with ones
and tens with tens.

336

337

SECOND
ACTIVITY
FOR
SKILL G

Have the students complete the following charts. (Teacher can make as many as desired.)



$+ 15 =$
$+ 25 =$
$+ 35 =$
$+ 45 =$
$+ 55 =$
$+ 65 =$
$+ 75 =$
$+ 85 =$



$+ 13 =$
$+ 23 =$
$+ 33 =$
$+ 43 =$
$+ 53 =$
$+ 63 =$

Practice writing the same
additions vertically.

$$\begin{array}{r} 11 \\ +15 \\ \hline \end{array}$$

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MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

THIRD
ACTIVITY
FOR
SKILL G

Give students the following written exercises to complete.

I. Suma

15	47	32	41	82
<u>+42</u>	<u>+31</u>	<u>+65</u>	<u>+23</u>	<u>+14</u>

60	35	24	50	40
<u>+17</u>	<u>+52</u>	<u>+65</u>	<u>+30</u>	<u>+27</u>

23	33	41	23	42
14	22	26	12	13
<u>+51</u>	<u>+11</u>	<u>+32</u>	<u>+33</u>	<u>+ 4</u>

THIRD
ACTIVITY
FOR
SKILL G
(CONTINUED)

II. Resuelve los siguientes problemas.

- A. En un llano de Argentina habían 44 vacas,
15 caballos y 30 ovejas.
¿Cuántos animales habían en total?
- B. En el pueblito de Cuzco hay 22 hombres, 30 mujeres
y 45 niños.
¿Cuántos personas hay por todo?
- C. El Templo Azteca Quetzalcoalt tiene 32 escalones por
un lado 32 escalones por otro y 32 escalones por dentro.
¿Cuántos escalones tiene por todo?

SKILL H: Adding three digit numbers with no regrouping.

VOCABULARY

addends	"sumando"
sum	"suma"
ones	"unidades"
tens	"decenas"
hundreds	"centenas"

**FIRST
ACTIVITY
FOR
SKILL H**

Review counting by hundreds to 1000. Showing only hundreds from the Base Ten Blocks do the following:

Show 



then ask: ¿Cuántas centenas hay aquí?

Show 

ask: ¿Cuántas centenas hay aquí?

Ask: ¿Cuántas centenas hay por todo?

Explain:

5 centenas
+ 3 centenas

8 centenas

→
$$\begin{array}{r} 500 \\ + 300 \\ \hline 800 \end{array}$$

344

345

FIRST
ACTIVITY
FOR
SKILL H
(CONTINUED)

Prepare the following written exercise after having done several examples of the previous activity.

I. Suma las centenas.

$\begin{array}{r} \square \\ \square \\ \square \end{array} \begin{array}{r} \square \\ \square \end{array} + \begin{array}{r} \square \\ \square \\ \square \end{array} = \underline{8} \square$	<table border="1"> <thead> <tr> <th>□</th> <th>□</th> <th>/</th> <th>.</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>8</td> <td>0</td> <td>0</td> </tr> </tbody> </table>	□	□	/	.						8	0	0	$\begin{array}{r} 500 \\ +300 \\ \hline 800 \end{array}$
□	□	/	.											
	8	0	0											
$\begin{array}{r} \square \square \\ \square \square \end{array} + \begin{array}{r} \square \square \\ \square \\ \square \square \end{array} = \underline{\quad} \square$	<table border="1"> <thead> <tr> <th>□</th> <th>□</th> <th>/</th> <th>.</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	□	□	/	.					$\begin{array}{r} + \\ \hline \end{array}$				
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MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

FIRST
ACTIVITY
FOR
SKILL H
(CONTINUED)

$$200 + 500 = \underline{\hspace{2cm}}$$

$$500 + 100 = \underline{\hspace{2cm}}$$

$$300 + 400 = \underline{\hspace{2cm}}$$

$$200 + 200 = \underline{\hspace{2cm}}$$

$$300 + 600 = \underline{\hspace{2cm}}$$

$$\begin{array}{r} 200 \\ +400 \\ \hline \end{array}$$

$$\begin{array}{r} 300 \\ +500 \\ \hline \end{array}$$

$$\begin{array}{r} 200 \\ +600 \\ \hline \end{array}$$

$$\begin{array}{r} 200 \\ +600 \\ \hline \end{array}$$

$$\begin{array}{r} 100 \\ +500 \\ \hline \end{array}$$

$$\begin{array}{r} 300 \\ +300 \\ \hline \end{array}$$

$$\begin{array}{r} 800 \\ +100 \\ \hline \end{array}$$

$$\begin{array}{r} 200 \\ +700 \\ \hline \end{array}$$

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SECOND
ACTIVITY
FOR
SKILL H

Have students study the following examples shown on the chalkboard or overhead projector.

$$\begin{array}{rcl}
 325 & = & 3 \text{ centenas} \quad 2 \text{ decenas} \quad 5 \text{ unidades} \\
 +243 & = & +2 \text{ centenas} \quad 4 \text{ decenas} \quad 3 \text{ unidades} \\
 \hline
 & & 5 \text{ centenas} \quad 6 \text{ decenas} \quad 8 \text{ unidades} = 568
 \end{array}$$

O R

$$\begin{array}{rcl}
 325 & = & 300 + 20 + 5 \\
 +243 & = & +200 + 40 + 3 \\
 \hline
 & & 500 + 60 + 8 = 568
 \end{array}$$

$$\begin{array}{r}
 60 \\
 8 \\
 \hline
 568
 \end{array}$$

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

THIRD
ACTIVITY
FOR
SKILL H

Give students work exercises like the following:

134	413	512	705	816
+211	+224	+316	+203	+151

214	403	312	200	350
122	275	46	333	215
+343	+120	+501	+456	+423

Story Problems:

- | | |
|---|--|
| 1. 413 pesos
315 pesos
170 pesos
¿Cuántos pesos hay por todo? | 3. En el barco llegando a Puerto Rico habían
678 españoles
211 africanos
¿Cuántos personas llegaron por todo? |
| 2. Hay 215 niños en la Escuela Simón Bolívar.
Hay 561 niños en la Escuela José Martí.
¿Cuántos niños hay en ambas escuelas? | 4. En el pueblo de Cienfuegos en Cuba hay
564 españoles
314 indios
100 africanos
¿Cuántos personas hay por todo? |

SKILL I: Relating addition to subtraction.

VOCABULARY:

addition	"suma"
addend	"sumando"
sum	"suma"
subtraction	"resta"
minuend	"minuendo"
subtrahend	"sustraendo"
difference	"diferencia"
equations	"ecuaciones"
check	"comprobar"

FIRST
ACTIVITY
FOR
SKILL I

Explain and discuss the relationship of the following:

							
8	3			8			5
-5	+5			-3			+3
3	8			5			8

Using the three numerals involved (8, 5, 3) show students how to get two addition and two subtraction equations.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

FIRST
ACTIVITY
FOR
SKILL I
(CONTINUED)

Take concrete objects and after arranging them into a set, do the following:

1. Show the set and ask how many objects they see.



2. Divide the set into two sets (do not have to be equal) and ask how many objects they see in each subset.



3. Make students aware of the three numbers involved (5, 2, 3).

4. Using these numbers, show the two addition sentences derived from them.

$$2 + 3 = 5$$

$$3 + 2 = 5$$

5. Show the two subtraction sentences derived from the set or directly from the addition sentences.

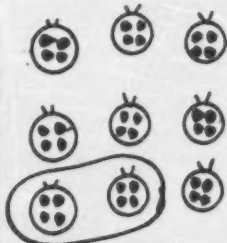
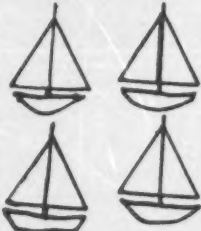
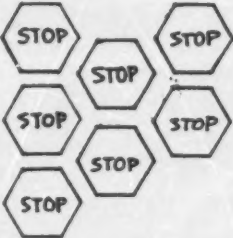
$$5 - 3 = 2$$

$$5 - 2 = 3$$

FIRST
ACTIVITY
FOR
SKILL I
(CONTINUED)

Give students the following written exercise.

Círculo algunos objetos. Escribe las cuatro oraciones matemáticas.

			
$\begin{array}{r} 7 + 2 = 9 \\ 2 + 7 = 9 \\ 9 - 2 = 7 \\ 9 - 7 = 2 \end{array}$	$\begin{array}{r} \_ + \_ = \_ \\ \_ + \_ = \_ \\ \_ - \_ = \_ \\ \_ - \_ = \_ \end{array}$	$\begin{array}{r} \_ + \_ = \_ \\ \_ + \_ = \_ \\ \_ - \_ = \_ \\ \_ - \_ = \_ \end{array}$	$\begin{array}{r} \_ + \_ = \_ \\ \_ + \_ = \_ \\ \_ - \_ = \_ \\ \_ - \_ = \_ \end{array}$

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

SECOND
ACTIVITY
FOR
SKILL I

Show the following related pairs.

$$\begin{array}{r} 8 \\ -3 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 5 \\ +3 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 7 \\ -2 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 5 \\ +2 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 4 \\ -1 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 3 \\ +1 \\ \hline 4 \end{array}$$

After going through this, ask what would be the partner of . . .

(1) 9

(2) 4

(3) 6

360

$$\begin{array}{r} -3 \\ \hline \end{array}$$

$$\begin{array}{r} -4 \\ \hline \end{array}$$

$$\begin{array}{r} -4 \\ \hline \end{array}$$

361

THIRD
ACTIVITY
FOR
SKILL I
(CONTINUED)

This is the way we check subtraction. Explain that we check subtraction by adding the difference and the number that was taken away.

$$\begin{array}{r}
 5 \text{ minuendo} \\
 -4 \text{ sustraendo} \\
 \hline
 1 \text{ diferencia}
 \end{array}
 \quad
 \begin{array}{c}
 \xrightarrow{\text{comprobar}} \\
 \xrightarrow{\text{comprobar}} \\
 \xrightarrow{\text{comprobar}}
 \end{array}
 \quad
 \begin{array}{r}
 1 \\
 +4 \\
 \hline
 5 \text{ suma}
 \end{array}$$

Para comprobar la resta, suma la diferencia y el sustraendo y observa si la suma es igual al minuendo.

The following written exercise can be given as practice and later on turned into a concentration game.

$\begin{array}{r} 15 \\ -9 \\ \hline 6 \end{array}$	$\begin{array}{r} 6 \\ +9 \\ \hline 15 \end{array}$	$\begin{array}{r} 13 \\ -6 \\ \hline 7 \end{array}$	+
$\begin{array}{r} 10 \\ -5 \\ \hline 5 \end{array}$	+	$\begin{array}{r} 13 \\ -4 \\ \hline 9 \end{array}$	+
$\begin{array}{r} 13 \\ -9 \\ \hline 4 \end{array}$	+	$\begin{array}{r} 18 \\ -9 \\ \hline 9 \end{array}$	+
$\begin{array}{r} 13 \\ -7 \\ \hline 6 \end{array}$	+	$\begin{array}{r} 10 \\ -3 \\ \hline 7 \end{array}$	+
$\begin{array}{r} 8 \\ -4 \\ \hline 4 \end{array}$	+	$\begin{array}{r} 15 \\ -7 \\ \hline 8 \end{array}$	+
$\begin{array}{r} 10 \\ -4 \\ \hline 6 \end{array}$	+	$\begin{array}{r} 10 \\ -1 \\ \hline 9 \end{array}$	+
$\begin{array}{r} 9 \\ -1 \\ \hline 8 \end{array}$	+	$\begin{array}{r} 9 \\ -2 \\ \hline 7 \end{array}$	+

After correcting the complete exercise which was done on construction paper, have the children cut the paper along the lines making individual problem cards.

An individual child or small group can place the cards face down spread out on a desk top. In turn, each player selects a card and another card to match. Cards that do not match are returned face up until all cards are matched. The child with the largest number of pairs is the winner.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

SKILL J: Subtracting a one digit number from a two digit number with no regrouping.

VOCABULARY:

subtraction
minuend
subtrahend
difference
check

"resta"
"minuendo"
"sustraendo"
"diferencia"
"comprobar"

**FIRST
ACTIVITY
FOR
SKILL J**

Review expanded notation.

$$25 = 20 + 5$$

$$59 = 50 + 9$$

$$34 = 30 + 4$$

Show the following problem.

46 minuendo

-5 sustraendo

diferencia

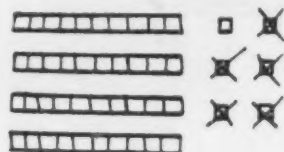
364

365

FIRST
ACTIVITY
FOR
SKILL J
(CONTINUED)

Explain that 46 is $40 + 6$ and that the 5 is subtracted from the 6.

Illustrate with the Base Ten Blocks.



$$\begin{array}{r} 40 + 6 \\ - 5 \\ \hline \end{array}$$

O R

$$4(6)$$

$$-(5)$$

$$40 + 1 = 41$$

$$41$$

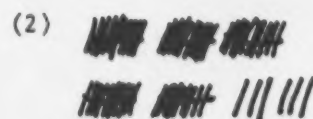
Show other examples using straws, sticks, an abacus or anything else that can be grouped in tens.



$$17$$

CHECK

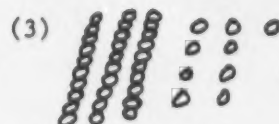
$$-2$$



$$76$$

CHECK

$$-6$$



$$39$$

CHECK

$$-8$$

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

SECOND
ACTIVITY
FOR
SKILL J

Give practice exercises on the chalkboard or on a ditto. Check.

48

57

19

67

-3-4-5-2STORY PROBLEMS

Lee los problemas. Resuélvelos y luego comprueba.

- (1) Angel Negrón cogió 29 sacos de café, pero camino a su casa se le rompieron 5 sacos.
¿Cuántos sacos le quedaron?
- (2) En Perú Andrés notó que cerca de la costa la temperatura es 8° más alta que la temperatura de la montaña.
¿Cuál era la temperatura a lo alto de la montaña?
- (3) Cachita tenía 97 pesos. Gastó 5 pesos en una estola.
¿Cuántos pesos le sobraron?

SKILL K: Subtracting a two digit number from a two digit number with no regrouping.

VOCABULARY:

tens
ones
subtract

"decenas"
"unidades"
"restar"

FIRST
ACTIVITY
FOR
SKILL K

Show a subtraction exercise involving two digits minus two digits.

$$\begin{array}{r} 64 \\ -51 \\ \hline \end{array}$$

Ask students to show you with the Base Ten Blocks the number 64.



6 T E N S



4 O N E S

370

371

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

FIRST
ACTIVITY
FOR
SKILL K

Now direct their attention to 51 which is:

5 tens and 1 one.

(CONTINUED) Explain that you subtract the ones from the ones and the tens from the tens.

$$\begin{array}{r} 6 \text{ tens } 4 \text{ ones} \\ - 5 \text{ tens } 1 \text{ one} \\ \hline 1 \text{ ten } 3 \text{ ones} = 13 \end{array}$$

O R

$$\begin{array}{r} (6)(4) \\ - (5)(1) \\ \hline 1 \ 3 \end{array}$$

Illustrate or have the students illustrate with tens and ones the following subtraction problems.

$$\begin{array}{r} (1) \ 25 \\ - 14 \\ \hline \end{array}$$

$$\begin{array}{r} (2) \ 68 \\ - 45 \\ \hline \end{array}$$

$$\begin{array}{r} (3) \ 77 \\ - 32 \\ \hline \end{array}$$

$$\begin{array}{r} (4) \ 95 \\ - 44 \\ \hline \end{array}$$

$$\begin{array}{r} (5) \ 48 \\ - 25 \\ \hline \end{array}$$

$$\begin{array}{r} (6) \ 87 \\ - 43 \\ \hline \end{array}$$

$$\begin{array}{r} (7) \ 94 \\ - 24 \\ \hline \end{array}$$

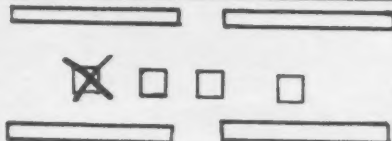
$$\begin{array}{r} (8) \ 36 \\ - 13 \\ \hline \end{array}$$

Check each problem with addition.

SECOND
ACTIVITY
FOR
SKILL K

In the following exercise, the students have to:

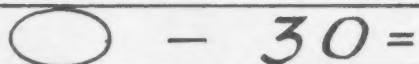
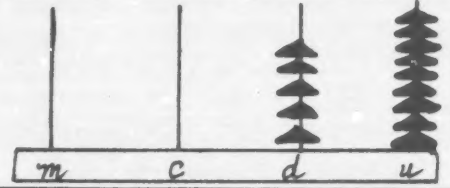
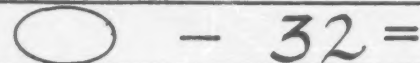
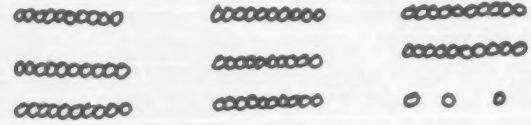
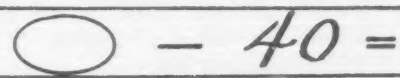
- (1) Write in the space provided the numeral represented by the drawing.
- (2) X off on the drawing the number that is subtracted.
- (3) Write in the difference.
- (4) Complete the problem in vertical form.

		$\begin{array}{r} 65 \\ -21 \\ \hline 43 \end{array}$
$\textcircled{65} - 21 = 43$		

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

SECOND
ACTIVITY
FOR
SKILL K
(CONTINUED)

1		
		
2		
		
3		
		
4		
		

SKILL L: Subtracting three or four digit numbers with no regrouping.

VOCABULARY:

expanded notation
thousands
hundreds
tens
ones
subtract

"reagrupar"
"millares"
"centenas"
"decenas"
"unidades"
"resta"

FIRST
ACTIVITY
FOR
SKILL L

Review the following expanded notations.

400 = 4 centenas 0 decenas 0 unidades

139 = centenas decenas unidades

696 = centenas decenas unidades

4755 = 4 millares 7 centenas 5 decenas 5 unidades

5271 = millares centenas decenas unidades

1000 = millares centenas decenas unidades

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

FIRST
ACTIVITY
FOR
SKILL L
(CONTINUED)

Explain that ones are subtracted from ones, tens from tens, hundreds from hundreds and thousands from thousands:

$$\begin{array}{r} \text{START HERE} \\ \downarrow \\ \begin{array}{r} \textcircled{4} \textcircled{3} \textcircled{5} \textcircled{8} \\ - \textcircled{3} \textcircled{1} \textcircled{1} \textcircled{6} \\ \hline 1 \ 2 \ 4 \ 2 \end{array} \end{array}$$

Remind students to begin subtracting from right to left.

Give practice exercises.

628

$$\begin{array}{r} 628 \\ -203 \\ \hline \end{array}$$

886

$$\begin{array}{r} 886 \\ -635 \\ \hline \end{array}$$

534

$$\begin{array}{r} 534 \\ -324 \\ \hline \end{array}$$

856

$$\begin{array}{r} 856 \\ -102 \\ \hline \end{array}$$

3154

$$\begin{array}{r} 3154 \\ -133 \\ \hline \end{array}$$

1372

$$\begin{array}{r} 1372 \\ -231 \\ \hline \end{array}$$

8521

$$\begin{array}{r} 8521 \\ -1310 \\ \hline \end{array}$$

8278

$$\begin{array}{r} 8278 \\ -3145 \\ \hline \end{array}$$

FIRST
ACTIVITY
FOR
SKILL L
(CONTINUED)

Discuss the following problems.

PROBLEM A

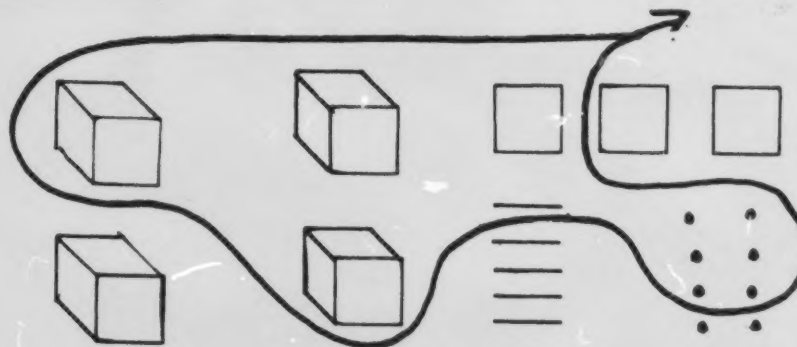
1



$$\begin{array}{r} 648 = 600 + 40 + 8 \\ - 231 = - (200 + 30 + 1) \\ \hline 400 + 10 + 7 = 417 \end{array}$$

PROBLEM A

2



$$\begin{array}{r} 4358 = 4000 + 300 + 50 + 8 \\ - 3116 = - (3000 + 100 + 10 + 6) \\ \hline 1000 + 200 + 40 + 2 = 382 \end{array}$$

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT III: LATIN AMERICA

SECOND
ACTIVITY
FOR
SKILL L

Prepare the following Dominoe Game.

828 828	512 512	215 $\begin{array}{r} 701 \\ +127 \\ \hline \end{array}$	$\begin{array}{r} 475 \\ -260 \\ \hline \end{array}$ $\begin{array}{r} 312 \\ +520 \\ \hline \end{array}$	$\begin{array}{r} 795 \\ -41 \\ \hline \end{array}$ $\begin{array}{r} 646 \\ -431 \\ \hline \end{array}$
908 908	754 754	$\begin{array}{r} 705 \\ +203 \\ \hline \end{array}$ 512	$\begin{array}{r} 828 \\ -316 \\ \hline \end{array}$ $\begin{array}{r} 786 \\ -571 \\ \hline \end{array}$	$\begin{array}{r} 866 \\ -112 \\ \hline \end{array}$ 828
832 832	754 $\begin{array}{r} 512 \\ +316 \\ \hline \end{array}$	$\begin{array}{r} 203 \\ +705 \\ \hline \end{array}$ 832	$\begin{array}{r} 302 \\ +530 \\ \hline \end{array}$ $\begin{array}{r} 603 \\ +305 \\ \hline \end{array}$	908 $\begin{array}{r} 657 \\ -142 \\ \hline \end{array}$
215 215	$\begin{array}{r} 316 \\ +512 \\ \hline \end{array}$ 832	$\begin{array}{r} 530 \\ +302 \\ \hline \end{array}$ $\begin{array}{r} 984 \\ -230 \\ \hline \end{array}$	512 $\begin{array}{r} 856 \\ -102 \\ \hline \end{array}$	$\begin{array}{r} 305 \\ -603 \\ \hline \end{array}$ 215
	$\begin{array}{r} 127 \\ +101 \\ \hline \end{array}$ 908	$\begin{array}{r} 777 \\ -265 \\ \hline \end{array}$ $\begin{array}{r} 600 \\ +232 \\ \hline \end{array}$	$\begin{array}{r} 889 \\ -377 \\ \hline \end{array}$ 754	828 $\begin{array}{r} 967 \\ -752 \\ \hline \end{array}$

SECOND
ACTIVITY
FOR
SKILL L
(CONTINUED)

PROCEDURE:

Two, three or four players can play.

1. Mix up the dominoes face down on a table.
2. Each player takes six dominoes.
3. Have time for players to solve problems on paper (which they keep).
4. The payer with the highest double number starts the game by placing that double face up on the table.
5. Player to the right finds a matching problem and places it next to the answer.

806	203	
806	+705	

6. Players take turns placing one match for each turn.
7. If a player does not have a match he/she passes or takes one more dominoe from the left over dominoes.
8. First player who gets rid of all his dominoes, wins.
9. Players can refer to their paper at any time.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

- SKILL A: Reading word names one to one hundred and by 100's to 1000.
- SKILL B: Writing word names one to thirty and by 10's to 100.
- SKILL C: Telling time.
- SKILL D: Recognizing and reading Roman Numerals I - XII.
- SKILL E: Recognizing multiplication terms and symbols.
- SKILL F: Multiplication as repeated addition.
- SKILL G: Representing multiplication problems in arrays.
- SKILL H: Commutative property of multiplication.
- SKILL I: Recognizing division terms and symbols.
- SKILL J: Division as repeated subtraction.
- SKILL K: Representing division problems in arrays.
- SKILL L: Multiplication and division as inverse operations.
- SKILL M: Multiplication and division through the tables of 5.

SKILL A: Reading word names one to one hundred and by hundreds (100's) to one thousand.

**FIRST
ACTIVITY
FOR
SKILL A**

Prepare a bulletin board display of the number ~~names~~ 1 to 100 and of the hundreds to 1000. The following should be included due to the practicality of space: 1-20, 30, 40, 50, 60, 70, 80, 90, 21, 31, 41, 51, 61, 71, 81, 91, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000. The bulletin board can be referred to throughout the study of the number names. A ditto of the number names should also be prepared and distributed to the students so they can take the number names home for study and/or easily have it at hand for different activities. An example of the ditto follows on the next two pages. It is suggested that the word names be written next to the numerals so a link-up is made. (The teacher must decide how many of the number names are going to be introduced and discussed each day. The following sequence is suggested: number names 1-20, number names 20, 30, 40, 50, 60, 70, 80, 90, 100, number names 21-100 and hundreds to 1000.)

Distribute the ditto with the number names and begin to discuss them making use of the bulletin board display.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

FIRST ACTIVITY FOR SKILL ADITTO HANDOUT FOR READING THE NUMBER NAMES

Los números en palabras.

1 - uno
 2 - dos
 3 - tres
 4 - cuatro
 5 - cinco
 6 - seis
 7 - siete
 8 - ocho
 9 - nueve
 10 - diez
 11 - once
 12 - doce
 13 - trece
 14 - catorce
 15 - quince
 16 - diez y seis
 17 - diez y siete
 18 - diez y ocho
 19 - diez y nueve
 20 - veinte

20 - veinte
 30 - treinta
 40 - cuarenta
 50 - cincuenta
 60 - sesenta
 70 - setenta
 80 - ochenta
 90 - noventa
 100 - cien
 21 - veinte y uno
 22 - veinte y dos
 23 - veinte y tres
 24 - veinte y cuatro
 25 - veinte y cinco
 26 - veinte y seis
 27 - veinte y siete
 28 - veinte y ocho
 29 - veinte y nueve
 30 - treinta

31 - treinta y uno
 32 - treinta y dos
 33 - treinta y tres
 34 - treinta y cuatro
 35 - treinta y cinco
 36 - treinta y seis
 37 - treinta y siete
 38 - treinta y ocho
 39 - treinta y nueve
 40 - cuarenta
 41 - cuarenta y uno
 42 - cuarenta y dos
 43 - cuarenta y tres
 44 - cuarenta y cuatro
 45 - cuarenta y cinco
 46 - cuarenta y seis
 47 - cuarenta y siete
 48 - cuarenta y ocho
 49 - cuarenta y nueve
 50 - cincuenta

FIRST ACTIVITY FOR SKILL A (CONTINUED)

DITTO HANDOUT FOR READING THE NUMBER NAMES

Los numeros en palabras.

51 - cincuenta y uno
 52 - cincuenta y dos
 53 - cincuenta y tres
 54 - cincuenta y cuatro
 55 - cincuenta y cinco
 56 - cincuenta y seis
 57 - cincuenta y siete
 58 - cincuenta y ocho
 59 - cincuenta y nueve
 60 - sesenta
 61 - sesenta y uno
 62 - sesenta y dos
 63 - sesenta y tres
 64 - sesenta y cuatro
 65 - sesenta y cinco
 66 - sesenta y seis
 67 - sesenta y siete
 68 - sesenta y ocho
 69 - sesenta y nueve
 70 - setenta

71 - setenta y uno
 72 - setenta y dos
 73 - setenta y tres
 74 - setenta y cuatro
 75 - setenta y cinco
 76 - setenta y seis
 77 - setenta y siete
 78 - setenta y ocho
 79 - setenta y nueve
 80 - ochenta
 81 - ochenta y uno
 82 - ochenta y dos
 83 - ochenta y tres
 84 - ochenta y cuatro
 85 - ochenta y cinco
 86 - ochenta y seis
 87 - ochenta y siete
 88 - ochenta y ocho
 89 - ochenta y nueve
 90 - noventa

91 - noventa y uno
 92 - noventa y dos
 93 - noventa y tres
 94 - noventa y cuatro
 95 - noventa y cinco
 96 - noventa y seis
 97 - noventa y siete
 98 - noventa y ocho
 99 - noventa y nueve
 100 - cien
 100 - cien
 200 - doscientos
 300 - trescientos
 400 - cuatrocientos
 *500 - quinientos
 600 - seiscientos
 700 - setecientos
 800 - ochocientos
 *900 - novecientos
 1000 - mil

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

FIRST
ACTIVITY
FOR
SKILL A
(CONTINUED)

After the number names 1-15 have been introduced, the number names 16-100 make use of what the children have learned previously, except now they must combine word names. When learning 21, 22, 23, etc., it is suggested that the children learn the form:

- 21 - veinte y uno
- 22 - veinte y dos
- 23 - veinte y tres

instead of:

- 21 - veintiuno
- 22 - veintidos
- 23 - veintitres, etc.,

because the first form is more consistent with how the rest of the number names (30-100) will be written.

*When discussing the hundreds to 1000, special emphasis should be given to 500 - quinientos, 700 - setecientos and 900 - novecientos because their spelling pattern is different from the rest of the hundreds number names.

SECOND
ACTIVITY
FOR
SKILL A

As the number names are being introduced, group by group, the following oral discussion chalkboard activity, "Circle the Number Name," can be played. However, the students should not make use of their "Number Name Ditto."

If 21, 22, 23, 24, etc., are being drilled, ask one student to write a numeral on the chalkboard. Let us say he/she writes 26. Then, the teacher should quickly write 3 number names next to the numeral 26.

26

veinte y dos
treinta y seis
veinte y seis

Then ask the same student or another student to draw a circle around the correct number name. The student can use the bulletin board to figure out the correct answer. Repeat the activity as many times as desired. This activity can easily be made into a competitive game with two teams.

THIRD
ACTIVITY
FOR
SKILL A

Write the key number names on flash cards and then have the students individually, or as a group, read the number names.

FOURTH
ACTIVITY
FOR
SKILL A

Play Number Name Bingo. Distribute a Bingo Sheet to each student. (An example appears to the left.)

(EJEMPLO)

Bingo de Nombres de Números

		gratis		

Write the Number Names the teacher feels the students need the most practice reading on the chalkboard. There should be at least 20 different Number Names. Then, ask the children to write in the Number Names in anyway they want in the Bingo Sheet boxes, one number name per box. (See example to the right.) *Tell the students not to fill in the boxes the way their neighbors do. Then play Bingo. Randomly, read the number names to the students. Have them cover a Number Name when it is read. Students must be able to read the Number Names in order to play. First player to cover five boxes in a row is a winner.

(EJEMPLO)

La Hoja de Bingo con los Números

diez	dos	ocho cientos	veinte y uno	mil
sete- cientos	cuarenta	cien	tres	sesenta y cuatro
diez y siete	uno	gratis	nove- cientos	treinta
doce	ochenta y ocho	dos- cientos	siete	cuatro- cientos
quin- cientos	veinte y nueve	siete	veintita y ocho	veintita y nueve

BEST COPY AVAILABLE

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

FIFTH
ACTIVITY
FOR
SKILL A

Examples of written exercises to practice reading the Number Names.

- I. Pareando - Parea con una línea los números en palabras de la Columna A. con los numerales de la Columna B.

A.	B.
diez	20
veinte	60
treinta	90
cuarenta	10
cincuenta	50
sesenta	100
setenta	80
ochenta	40
noventa	70
cien	30

- II. Lee los números en palabras y escribe los numerales correspondientes.

A. setenta <u>70</u>	E. trescientos <u> </u>
B. treinta y tres <u> </u>	F. quinientos <u> </u>
C. cincuenta y dos <u> </u>	G. setecientos <u> </u>
D. noventa y ocho <u> </u>	H. novecientos <u> </u>

NOTE: This exercise would be an ideal form to use to test whether the students can read the number names.

- III. Escribe la suma o resta en numerales y resuelve.

EJEMPLO: diez y seis (16)
 +veinte y uno (21)
 (37)

SUMA

1. seis +tres	2. trece +catorce	3. sesenta y cuatro +treinta y tres	4. trescientos +quinientos
------------------	----------------------	--	-------------------------------

RESTA

5. nueve -siete	6. diez y nueve -once	7. ochenta y ocho -sesenta y cinco	8. novecientos -setecientos
--------------------	--------------------------	---------------------------------------	--------------------------------

400

401

SKILL B: Writing word names 1-30 and by 10's to 100.

VOCABULARY: word names 1-30 plus 100
40, 50, 60, 70, 80, 90

**FIRST
ACTIVITY
FOR
SKILL B**

It is suggested that the word names to be learned in this skill be divided into two learning groups. (1-20 and 21-30 plus 40, 50, 60, 70, 80, 90 and 100) Then, the words would be treated as spelling words with appropriate spelling lesson activities. The following example worksheets, with different activities, are suggested.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

FIRST ACTIVITY FOR SKILL B (CONTINUED)

Example Worksheets For Learning To Spell The Word Names.

NOMBRE	FECHA
MAESTRO	GRADO P. 1

Escribiendo los números en palabras.

I. Escribe cada palabra 10 veces.

- | | | |
|-----------|-------------|------------------|
| 1. uno | 8. ocho | 15. quince |
| 2. dos | 9. nueve | 16. diez y seis |
| 3. tres | 10. diez | 17. diez y siete |
| 4. cuatro | 11. once | 18. diez y ocho |
| 5. cinco | 12. doce | 19. diez y nueve |
| 6. seis | 13. trece | 20. veinte |
| 7. siete | 14. catorce | |

II. Llena los espacios en blanco con las letras que faltan.

- | | | |
|---------------|--------------|--------------------|
| a. un _ | e. o _ _ d | i. d _ z y s _ _ s |
| b. tr _ c _ | f. d _ e _ | j. _ ie _ y _ ch _ |
| c. q _ i _ ce | g. _ o _ | k. sie _ _ |
| d. _ uat _ _ | h. _ ein _ e | l. ca _ o _ _ e |

III. Escribe los números en palabras para cada numeral.

- | | | |
|-------------|--------------|--------------|
| a. 5. _____ | c. 19. _____ | e. 17. _____ |
| b. 3. _____ | d. 12. _____ | f. 20. _____ |

IV. Para cada problema de suma o resta, escribe la suma o diferencia en palabras.

- a. 10 b. 7 c. 17 d. 14

+10	+9	-8	-8
veinte			

NOMBRE	FECHA	P.2
--------	-------	-----

Escribiendo los números en palabras

V. Ordena las letras.

- | | |
|-------------------|------------------------|
| a. unvee - nueve | d. zide y ssie - _____ |
| b. cone - _____ | e. nocic - _____ |
| c. einvet - _____ | f. retec - _____ |

VI. Lee las oraciones y escribe un número en palabra en los espacios en blanco.

- Cada niño tiene _____ manos.
- Cada niña tiene _____ dedos de los pies.
- Yo me levanto a las _____ a.m.
- Para obtener una licencia para guiar un carro, tiene que tener _____ años.
- Mi hermano mayor tiene _____ años.

VII. Busca palabras.- Busca los números en palabras. Dibuja un círculo alrededor de cada palabra.

u	t	r	e	c	e	d	o	s	h	e	l	o	e	c
l	n	u	e	v	e	o	o	n	c	e	y	h	c	i
o	s	e	c	h	o	q	u	i	n	c	e	c	o	n
y	i	n	d	a	l	o	c	u	a	t	r	o	d	e
v	e	r	d	i	e	z	y	s	e	i	s	y	s	o
s	t	w	h	r	e	y	o	u	d	i	e	z	a	z
i	e	r	t	h	e	z	c	u	b	s	w	i	l	e
e	w	t	r	e	s	i	y	n	i	n	i	n	e	i
s	c	a	t	o	r	c	e	s	i	e	t	e	z	d

SECOND
ACTIVITY
FOR
SKILL B

Read, or hand-out a copy of the following story, "Amador visita a Europa." Distribute a worksheet with the fill-in-the-blank exercises as shown below.

AMADOR VISITA A EUROPA

Amador, un niño de nueve años, quería visitar los países de donde vinieron sus familiares. Amador nació en Bridgeport. Sus padres nacieron en Puerto Rico. Pero los abuelos de Amador nacieron en España e Italia.

Antes de llegar a España e Italia, visitaron a Inglaterra, Francia y Alemania. Visitaron cinco países por todo.

Amador le gustó mucho Italia. Visitó el vaticano en Roma donde vive el Papa y le gustó mucho la comida italiana, especialmente el "spagetti."

Pero, sin duda, España fue el país favorito de Amador por dos razones. Primero, le gustó porque se habla español y segundo porque hizo varias cosas interesantes.

Amador fue a una corrida de toros donde los matadores mataron seis toros. Amador visitó el famoso museo de España, El Prado y vió obras de arte por diez y ocho artistas. Después, fue a un restaurante donde vió un espectáculo de baile flamenco y comió Paella, que es una comida muy especial. ¡Qué deliciosa comida!

Amador le gustó mucho su viaje Europa. Quiere regresar cuando tenga veinte años.

Completa las oraciones llenando los espacios en blanco.

1. Amador tiene nueve años.
2. Amador visitó _____ países en su viaje a Europa.
3. Amador le gustó especialmente _____ países.
4. Amador le gustó mucho _____ comidas.
5. Cuando Amador visitó a España, hizo _____ cosas con su familia.
6. Mataron _____ toros en la corrida de toros que vió Amador.
7. Amador vió obras de arte por _____ artistas en El Prado.
8. Amador quiere regresar a Europa cuando tenga _____ años.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

THIRD
ACTIVITY
FOR
SKILL B

Organize a Spelling Bee activity with the students. All children who want to participate should come and stand at the front of the room. Then, the teacher gives each child, by turn, a word they must spell. If a child misspells a word, he/she drops out. The last child remaining is the winner.

The following are special instructions to remember when doing the Spelling Bee.

1. The teacher should repeat the word twice and no more.
2. The student should repeat the word before beginning to spell it.
3. All other children should remain silent during the game.
4. The teacher is the sole judge.
5. Do not allow students to "hem and haw"-starting over again.

FOURTH
ACTIVITY
FOR
SKILL B

Give a spelling test on the word names to determine who has mastered the skill.

SKILL C: Telling time to the whole hour, half hour and to five minutes.

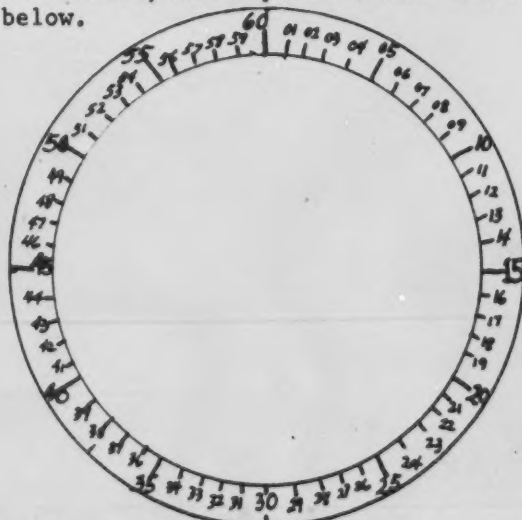
VOCABULARY:

"La hora en punto."
 "Las _____ y _____."
 "Las _____ menos _____."
 "Minutero"
 "Horario"

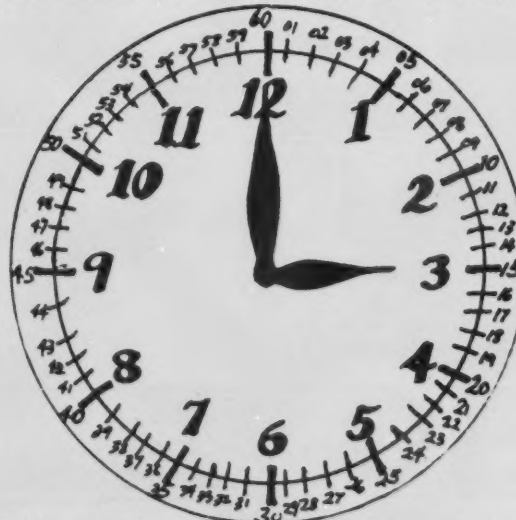
FIRST
 ACTIVITY
 FOR
 SKILL C

Before doing any instruction on time with the children, make a circular strip, showing the minutes of an hour, and tape it around the outside of the wall clock in the classroom. See the pictures below.

*Circular
 Strip*



*Tape around
 the class
 wall clock*



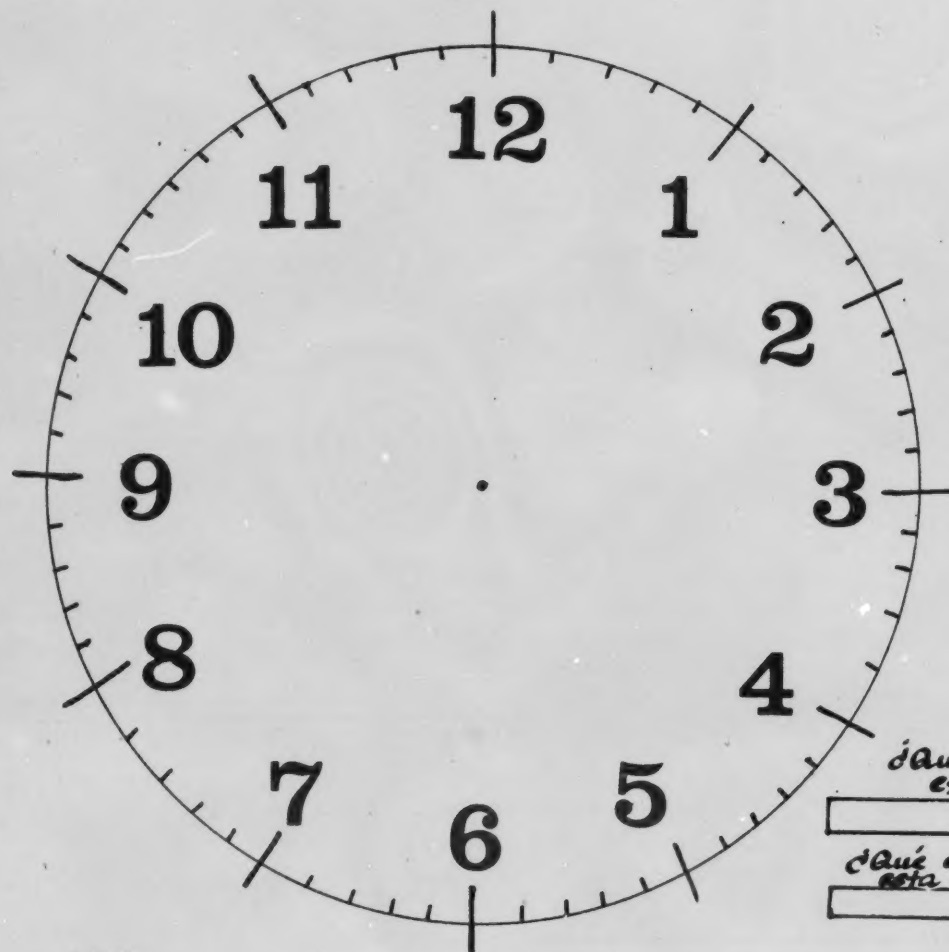
By doing this, the students will have a constant aid in telling time. If the students have to sign out to go to the bathroom, or have a hall pass filled out to go to the office, the teacher can encourage the student to read the time.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

SECOND
ACTIVITY
FOR
SKILL C

El reloj



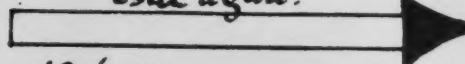
MAKE MODEL CLOCKS.

Distribute a ditto sheet as shown at the left to each child. Have them (1) fill in the rest of the numbers of the clock face (the minute numbers as in the First Activity if so desired), (2) paste the ditto sheet to an 8" x 8" piece of oaktag and (3) make appropriate sized hour and minute hands which can be attached with a medal attachment. This clock can then be used as an aid throughout the unit.

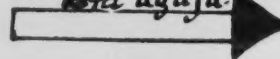
The teacher should prepare a similar clock model, but of a larger size.

After the clocks have been made, the teacher may give an overview of the unit showing different times on his/her model clock, having the students copy his/her model, and then quizzing the students to determine to what extent the students can read the time.

*¿Qué es
esta agua?*



*¿Qué es
esta aguja?*



THIRD
ACTIVITY
FOR
SKILL C

TELLING TIME TO THE HOUR.

Using the clock models, review with the students the function of the hour hand and the minute hand. Review that it takes one hour for the hour hand to move from one number to another.

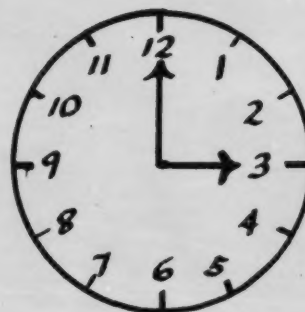
Review that it takes one hour, or sixty minutes for the minute hand to go all the way around the clock. Also, review with the students that it takes five minutes for the minute hand to move from the mark of one number to the mark of another number. Also review that each mark on the clock stands for one minute.

Then, review that when the minute hand is pointing to the 12 and the hour hand is pointing to one of the clock's numbers, this is "la hora en punto," or the time to the hour.

Show various times to the hour and have the children tell you the time. Allow the students to give example times to the hour to see if their classmates can tell the time.

Review the two ways of writing the time. The time on the clock to the left can be written either *Las 3 en punto* ó 3:00.

Las 3 en punto
ó 3:00



When reviewing telling time to the hour, have students write the times using both methods.

To give practice in understanding the function of the hour and minute hand, and in telling the time to the hour, prepare a worksheet with the following types of written activities.

THIRD ACTIVITY FOR SKILL C (CONTINUED)

Leyendo la hora en punto

I. Mirando el reloj, ¿cuántas horas tomará el horario para moverse desde

- a. 9 hasta 10? 1 horas
 b. 9 hasta 11? 2 horas

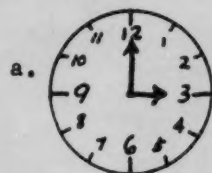
- c. 9 hasta 2? 11 horas
 d. 9 hasta 4? 5 horas

II. Mirando al reloj, ¿cuántos minutos tomará el minutero para moverse desde

- a. 12 hasta 1? 5 minutos
 b. 12 hasta 2? 10 minutos

- c. 12 hasta 6? 30 minutos
 d. 12 hasta 8? 40 minutos

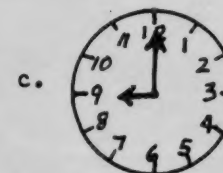
III. Escribe la hora del reloj en ambas maneras.

Las 3 en punto

3:00

Las 12 en punto

12:00



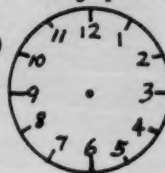
9:00

IV. Lee la hora y entonces dibuja a las manos del reloj para enseñar la hora.

a. Las 5 en punto



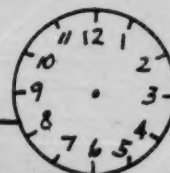
b. 4:00



c. 10:00



d. Las 6 en punto



FOURTH
ACTIVITY
FOR
SKILL C

TELLING TIME TO THE HALF HOUR.

Review telling time to the half hour by using the clock model and/or the classroom wall clock.

Slowly advance the hands of the clock one complete hour. Ask the children what happened to the minute hand and what happened to the hour hand. Remind them that there are 60 minutes in an hour.

Repeat this activity but stop the minute hand at the 6 or the half hour. Now ask again what happened to the minute hand and have them notice where each hand is. Have them position the hands of their clocks in a similar location. Discuss that when the minute moves half way around the clock and is positioned at the 6, and the hour hand is right between two numbers this is time to the half hour.

Ask them how many minutes half an hour is. Have them check their answers by counting the minute marks on the clock from the 12 to the 6.

Using the model clocks, demonstrate several times to the half hour. Allow the class to also show half hour times. As demonstrating the half hour times, write the times on the chalkboard demonstrating the three ways the time can be written to the half hour.

For example, for the clock shown below, the time can be written:

1. Las 8 y media.
2. Las 8 y 30.
3. Las 8:30.



MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

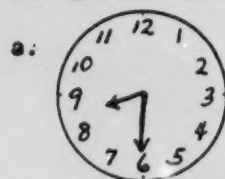
FOURTH ACTIVITY FOR SKILL C

To give practice in telling time to the half hour, prepare a written exercise with the following type of exercises.

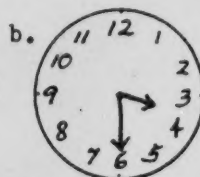
Leyendo la media hora

Notice that the student is given a decreasing amount of assistance.

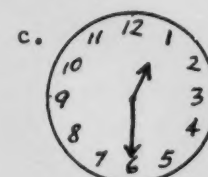
I. Escribe la hora del reloj de varias maneras.



Las 8 y media
Las 8 y 30
8:30



Las ____ y media
Las ____ y ____



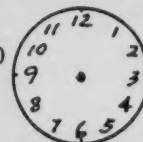
____ y ____
____ y ____

II. Lee la hora y dibuja las manecillas del reloj.

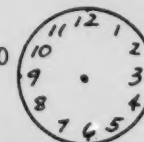
a. Las 10 y media



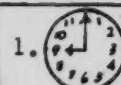
b. Las 2 y 30



c. 7:30



III. Completa:



El tiempo que pasó entre reloj A y reloj B fue ____ minutos

2. 1 hora = ____ minutos
3. Media hora = ____ minutos
4. 1 hora y media = ____ minutos ($60 + 30 = \triangle$)
5. 2 horas = ____ minutos ($60 + 60 = \triangle$)

IV. Lee la pregunta y contesta usando oraciones completas.

1. Las Olimpiadas de 1980 se llevarán a cabo en Rusia. El desfile de atletas comenzará a las 8 en punto y terminará a las 8 y media. ¿Cuántos minutos durará el desfile? _____
2. Los pescadores de Suecia se levantan a las 4:00 por la mañana y preparan los barcos para pescar. Terminan de preparar los barcos a las 5:30. ¿Cuánto tiempo toman en preparar los barcos?

FIFTH
ACTIVITY
FOR
SKILL C

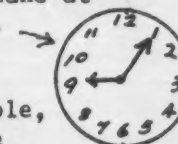
TELLING TIME TO THE NEAREST FIVE MINUTES.

Review telling time to the nearest 5 minutes using the model clocks previously prepared.

First, review counting by 5's to 60. Ask why they only counted to 60. (Because there are only 60 minutes in an hour.)

Second, ask the children if they remember how many minutes it takes for the minute hand to move from one number to another.

Third, place the teacher demonstration model clock at 9:00. Then, move the minute hand at 5 minute intervals all the way around the clock. When the clock appears as such... have the children position their clocks in the same way and ask them to tell you the time. As the children say the time, review how the time is written by writing the time on the chalkboard. Show the two methods the time can be written. For example, Las 9 y 5 or 9:05. Remind children that if the second form is used, when writing the time 9:00 until 9:10, that a "0" must be written. (Some children will write 9:5 forgetting the zero.



Fourth, once 9:35 is reached in the activity, review with the children the third method of saying and writing the time. Las 10 menos 25 - 25 before 10. (25 minutes until 10 o'clock.) So, with 9:35, 9:40, 9:45, 9:50 and 9:55, write the time on the board. Using three methods.

For



write

1. Las 9 y 45

2. 9:45

or

3. Son las 10 menos 15.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

FIFTH
ACTIVITY
FOR
SKILL C
(CONTINUED)

Explain that you look at the hour the hour hand is approaching. You state that hour, and then count back so many minutes before that hour. Give many examples of this method of saying time.

Fifth, give many examples of telling the time to the nearest 5 minutes always having the time written, in the different methods on the chalkboard. Give students the opportunity to ask their classmates the time using their own model clocks.

SIXTH
ACTIVITY
FOR
SKILL C

To practice the different methods of writing the time.

Do a chalkboard exercise, which later will be reinforced by a written worksheet exercise.

Write "Las 2 y 30" on the chalkboard and ask the children to tell you two other methods "Las 2 y 30" can be written. Write them on the chalkboard as shown.

Las 2 y 30

Las 2 y media

2:30

4:45

Las 4 y 45

Las 5 menos 15.

Repeat with "Las 4 y 45" (or 4:45).

Repeat with as many examples as deemed necessary.

EXAMPLES:

1. Las 12 en punto 12:00.

2. Las 12 y 10 12:10.

3. 12:40

La 1 menos 20.

La 1 menos 20.

3:45

4. Las 4 menos 15.

Las 3 y 45.

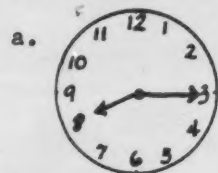
SEVENTH ACTIVITY FOR SKILL C

To give practice in telling time to the nearest 5 minutes and in writing the time in different ways. Create a worksheet with the following types of exercises.

Leyendo el reloj

(Note: Make the exercises progressively harder.)

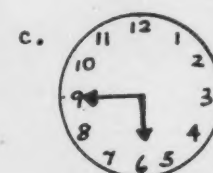
I. Escribe la hora que indica el reloj en varias maneras.



Las 8 y 15
8:15



Las ____ y ____
Las ____ y media



Las ____ y ____
Las 6 menos ____

II. Lee la hora y dibuja las manos del reloj.

a. Las 10 y 20



b. Las 3:35



c. Las 12 menos 15



III. Lee la hora. En el espacio, escribe otra forma aceptable de escribir la misma hora.

1. Las 3 en punto 3:00

3. 9:00 _____

4. Las 11 menos 15 _____

2. Las 4 y media 4:30

4. 5:25 _____

5. La 1 y 15 _____

Las 4 y 30

IV. Lee la pregunta y contesta usando oraciones completas.

1. En Inglaterra, el héroe de los pobres era "Robin Hood." Estando su novia en cautiverio la rescató en pocos minutos. Robin Hood entró al castillo a las 6:10 y salió con Marian a las 6:15. ¿Cuánto tiempo le tomó rescatar a su doncella Marian? _____

2. En España se come la comida a una hora diferente a la que se come en Estados Unidos. Se comienza a las 10 en punto y no termina hasta 11 y media. ¿Cuánto tiempo dura la comida en España? _____

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

ALL OF THE FOLLOWING ACTIVITIES ARE GAMES WHICH CAN BE USED AS "FUN" ACTIVITIES TO REINFORCE ALL THE PREVIOUSLY LEARNED SKILLS.

EIGHTH Play Name That Time.

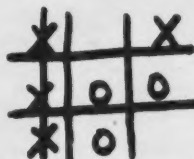
ACTIVITY
FOR
SKILL C

Make up a game fashioned after the T.V. show "Name That Tune." Have the competition between two players or two small teams. The "host" or teacher will show a time on the demonstration model clock. If the player answers the time correctly, he receives a pre-determined number of points. The game continues for a determined number of minutes or until so many points are won. The person or team with the most points is the winner.

NINTH Play Telling Time "Tic-Tac-Toe."

ACTIVITY
FOR
SKILL C

This game can either be played with three children (two players and one judge) or the judge should be a child skilled in reading the time or between the teacher and the whole class. When played by three children, the judge shows a time on the model clock. One player must tell the time. If he/she answers correctly, he/she marks an X. Then, the other child is given a time to read by the judge. If he/she answers correctly, he/she marks an O. The first player to draw three X's or O's in a row is the winner.



Playing Telling Time "Tic-Tac-Toe" between the teacher and the class is played in the following way. A tic-tac-toe drawing is drawn on the chalkboard. Then, the teacher will show times on the demonstration clock which the students, in turn, must tell the time. If the student gives the time correctly, that student marks an X wherever he/she wishes on the tic-tac-toe board. If he/she misses, then the teacher gets to mark an O wherever he/she wishes. The game continues until either the teacher or the class wins. A chart using tally marks can be used to keep track of games won.

Anotación		
	Clase	Maestro
		I

429

428

TENTH
ACTIVITY
FOR
SKILL C

Play Telling Time B I N G O.

This Bingo Game is similar to the Number Name Bingo game described in the Fourth Activity for Skill H.

Make up a Ditto Sheet with empty clock faces as shown on the following page. Do not draw in any hour or minute hands.

The game is like a lesson in that two things must be done before the game can be played. First, the teacher must select 24 different times that he/she wants the students to practice reading. These times are written on the chalkboard in what ever form the teacher wants to reinforce. For example: 9:00, 9: 15, 10:20, Las 3 y media, Las 5 menos 10, etc. . .

Then, the teacher should distribute to the students the Telling Time Bingo ditto sheet and instruct them to draw in the hour and minute hands to show the times the teacher has written on the chalkboard. Some students will need assistance in this part. Tell the children to mix up the times on their Bingo Sheet and not to follow the order of drawing in the times that a neighbor or friend does.

Once the students have filled in their Bingo Sheets, the game begins. The teacher either calls out a time or shows a time on his/her model clock. Each student finds that time on their Bingo Sheet and covers that space. First player to cover five spaces in a row is the winner.

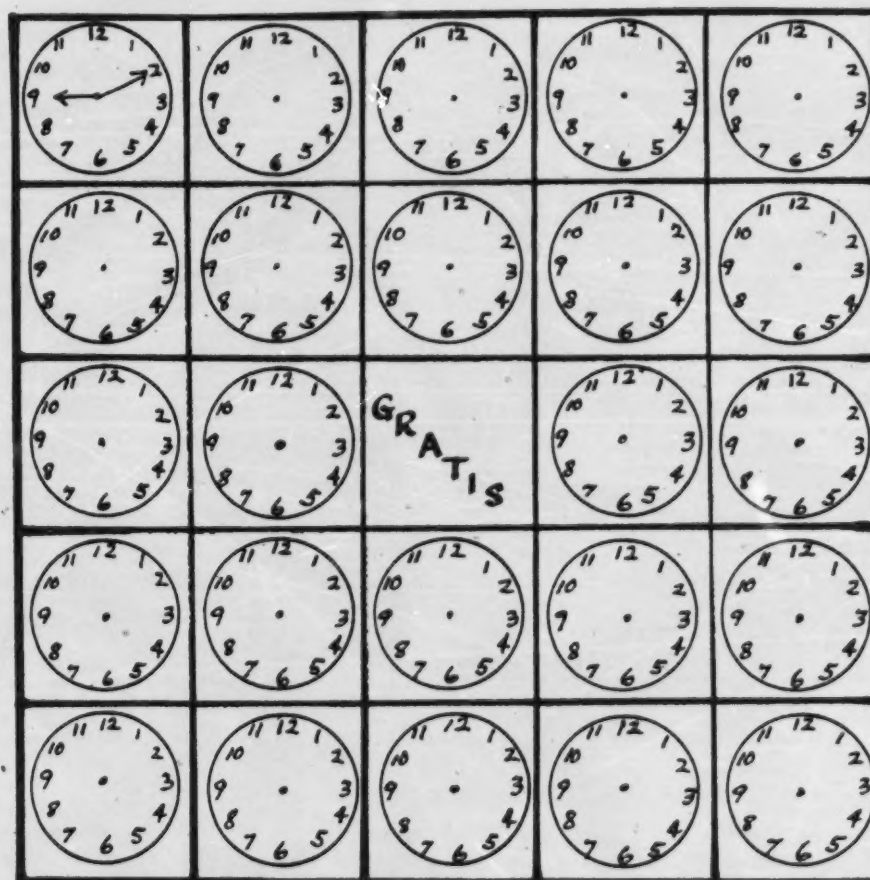
MATHEMATICS CURRICULUM FOR GRADE THREE

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TENTH ACTIVITY FOR SKILL C (CONTINUED)

TELLING TIME BINGO DITTO SHEET

The students draw in the hour and minute hands to represent the times the teacher has written on the chalkboard.



SKILL D: Recognizing and reading Roman numerals I to XII.

VOCABULARY: Roman Numerals "numerales romanos"

FIRST
ACTIVITY
FOR
SKILL D

Prepare a large model clock numbered with Roman Numerals. This clock will be used in an introductory discussion of Roman Numerals.



Show the students the Roman Numeral Clock.
Ask the following questions.

1. What is this thing I am holding?
(It is a clock.)
2. How do you know it is a clock?
3. What do you notice that is different
on this clock? (They should notice the
Roman Numerals.)

Discuss that the numbers they see on the clock are Roman Numerals.

Discuss briefly who the Romans were and discuss that the Romans used different symbols to write numbers.

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FIRST
ACTIVITY
FOR
SKILL D

HINTS
FOR
DISCUSSING
WHO
ROMANS
WERE

1. The Romans lived about 2000 years ago in the country that is now Italy.
2. Discuss any Easter movies the children might have seen regarding the life of Jesus. Discuss who the Romans were in the movie.
3. There have been other movies in which Romans appeared - Demetrius and the gladiators, etc.
4. The Romans were very powerful, they ruled the known Western World for hundreds of years.
5. Any pictures showing Roman ruins would help the children relate.

After discussing who the Romans were, return to the clock and while pointing to each Roman Numeral ask the children to tell what each Roman Numeral means. As the children are telling you the number of each Roman Numeral, write the Roman Numerals and their equivalent on a piece of large paper (as shown below) and hang it somewhere visible in the room.

Point out that Roman Numeral symbols are put together to make other Roman Numerals.

For example: I equals one. If you put three I's together (III), you have the symbol that stands for 3.

I	-	1
II	-	2
III	-	3
IV	-	4
V	-	5
VI	-	6
VII	-	7
VIII	-	8
IX	-	9
X	-	10

HANG ON THE
WALL OR BULLETIN
BOARD.

Point out two important rules when working with Roman Numerals.

1. Roman Numerals usually are added to the right to make larger Roman Numerals. Example: VI=6, VII=7, VIII=8. Symbols are added to the right.
2. However, you cannot write four Roman Numeral symbols together. For example, you do not write 4 like this, IIII. Instead, you write IV. It is as though a 'I' (1) was subtracted from the V (5). $5 - 1$ or $V - I = 4$ or IV. The same applies for 9 in Roman Numerals (IX). You cannot write VIIII, instead, IX means you subtract 1 from 10 which is 9 (IX).

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After finishing the discussion, hold up some objects (pencils, scissors, etc.) and have the students count the objects and then write the number of objects counted in Roman Numerals on the chalkboard. Give as many children as possible an opportunity to participate.

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SECOND
ACTIVITY
FOR
SKILL D

Make a list of different places the children have seen Roman Numerals. They might mention:

Big Clocks
Walls of Buildings
Watches
Books
Movie Credits, etc.

THIRD
ACTIVITY
FOR
SKILL D

To provide practice in working with Roman Numerals, prepare a written exercise with the following type of exercises.

Estudiando los numerales romanos

NOTE: A list of the Roman Numerals I to XII should be visible in the room so the students can refer to it.

I. Escribe los siguientes numerales como un numeral romano.

a. 3, b. 5, c. 7, d. 9, e. 12,

II. Da el numeral corriente para estos numerales romanos.

a. II, b. IV, c. VI, d. X, e. XI,

III. Escribe los numerales romanos que faltan.

I, II, ____, IV, ____, ____, VII, ____, ____, X, ____, ____.

IV. Escribe ó .

a. II IV, b. X IX, c. XII VIII, d. VII IX, e. I VI.

V. Escribe cada uno de los siguientes como un numeral romano.

a. 7+4, b. 5+4 c. 2+9 d. 7+5 e. 3+8.

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VI. Escribe el numeral romano que debe ir en vez de .

a. VI+IV= b. III+II= c. X-III= d. XII-VII= e. VI+VI= .

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FOURTH
ACTIVITY
FOR
SKILL D

Play "Guess the Covered Roman Numeral."

This game will reinforce recognizing and reading the Roman Numerals I to XII.
This game can be played by two persons. Write the Roman Numerals I to XII on a piece of paper. The Roman Numerals should be spaced out as shown below.

I	II	III	IV	V	VI
VII	VIII	IX	X	XI	XII

Five small squares  should be cut out of another piece of paper.

The game is played as follows. One player covers five of the Roman Numerals with the five squares. The other player must then guess what are the covered numerals. A player gets one point for every correct guess. After one player has his/her turn, the roles in the game are reversed. The first player to reach 10 points is the winner.

SKILL E: Recognizing multiplication symbols and terms.

VOCABULARY:

factors
product
multiplication
symbol
multiplication
sentence
equation

"factores"
"producto"
"signo de
multiplicación"
"oración de
multiplicación"
"ecuación"

FIRST
ACTIVITY
FOR
SKILL E

Prepare a Bulletin Board or a Ditto Hand-out the students should keep to introduce multiplication and serve as an aid in helping the students understand what multiplication is. The Bulletin Board can serve as a teaching tool to explain basic multiplication concepts and terms. The Bulletin Board below is suggested.

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FIRST ACTIVITY FOR SKILL E (CONTINUED)

BULLETIN BOARD DISPLAY

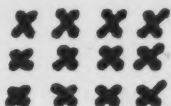
La multiplicación



El signo de multiplicación.

Multiplicación es

1. Uniendo grupos o conjuntos de números iguales.



Tres conjuntos de 4 son 12.

0

$$3 \times 4 = 12$$

2. Como una suma repetida $5 + 5 + 5 + 5 = 20$

0

$$5 \times 4 = 20$$

5 sumado 4 veces son 20.

factor factor

$$3 \times 4 = 12$$

producto

Oración de
Multiplicación

3 factor

$$\begin{array}{r} 3 \\ \times 4 \\ \hline 12 \end{array}$$

factor producto

¿Importa si multiplicamos así $3 \times 4 = 12$ o así $\frac{3}{12}$?

Conseguimos el mismo producto.....

No!



¡La contestación chico!

FIRST
ACTIVITY
FOR
SKILL E
(CONTINUED)

The objective in this Skill is to go over some basic, but important multiplication terms and concepts.

Using the bulletin board display, briefly discuss what multiplication is. Discuss that it is the joining of groups or arrays of numbers, giving a few examples. Also discuss that multiplication can be thought of as repeated addition, giving several more examples. Tell the children that multiplication is a faster, shorter way to add.

Review that $5 + 7 = 12$ is an addition sentence and $12 - 4 = 8$ is a subtraction sentence. Write $3 \times 4 = 12$ on the chalkboard and ask them what it is. By looking at the bulletin board display, they should know it is a multiplication sentence.

Discuss what a multiplication sentence is, discussing the parts of it: (1) the factors being (a) how many groups there and (b) how many there are in each group; these numbers are called factors, (2) the multiplication symbol ($\times$), as the signal that tells us what is going to be done with the numbers, (3) and the product, which is the answer or how many there are in all.

Before discussing horizontal and vertical forms of multiplication, write $5 + 4$ and $\overset{5}{+4}$ on the chalkboard. Ask the students if the answer will be the same to both addition examples. Then discuss that, in multiplication, it does not matter if you multiply horizontally or vertically. Give several examples of multiplication problems.

7×5 is the same as $\begin{array}{r} 7 \\ \times 5 \end{array}$

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

SKILL F: Multiplication as repeated addition.

FIRST
ACTIVITY
FOR
SKILL F

To introduce multiplication as repeated addition, read the following story to the children.

¿Recuerdan a Amador? Amador fue el niño que visitó a Europa con su familia. El padre de Amador le dió 4 dolares para gastar en cada país. Amador gastó 4 dólares en Inglaterra, 4 dólares en Alemania, 4 dólares en Italia, 4 dólares en España y 4 dólares en Francia. ¿Cuánto dinero gastó por todo?

Write on the chalkboard the amount of money Amador spent in each country.

$$4 + 4 + 4 + 4 + 4 =$$

Ask the children to explain how they would find out how much money Amador spent all together. Most likely, the children say add.

Discuss that it certainly is possible to get the answer by adding, but explain they can also get the same answer a simpler and shorter way, through multiplication.

Review (using the chalkboard) with the students that multiplication is like repeated addition. Show that $4 + 4 + 4 + 4 + 4 = \square$ can just as easily be solved by multiplying $4 \times 5 = \square$. In the example, 4×5 is nothing more than adding 4 five different times.

FIRST
ACTIVITY
FOR
SKILL F
(CONTINUED)

Continue the discussion using another example. Call three children up to the front of the room. Give each child five pencils. Ask how many pencils the teacher gave out. Ask what two ways the problem can be solved. They will state $5 + 5 + 5 = \square$ or it can be solved by multiplying $5 \times 3 \square$. The 5×3 means that there are three children and each child is going to receive five pencils. If you add $5 + 5 + 5$, it equals 15. Or, if you multiply 5×3 , you get 15. Discuss that multiplication, as repeated addition, is shorter and faster.

Repeat with as many examples as necessary. Write the repeated addition problem and the multiplication problem on the chalkboard one under the other.

$$5 + 5 + 5 + 5 + 5 + 5 + 5 = 35$$

$$7 \times 5 = 35$$

Make sure the children understand that in the example shown above, the factor, 7, means how many 5's are being joined together.

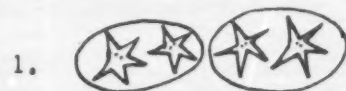
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UNIT IV: EUROPE

SECOND ACTIVITY FOR SKILL F

Develop the following types of written exercises to practice multiplication as repeated addition.

Resuelve sumando o multiplicando:



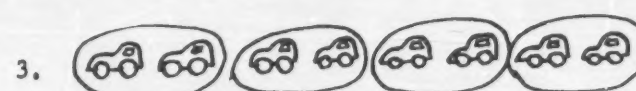
a. $2 + 2 =$
b. $2 \times 2 =$



a. $4 + 4 =$
b. $2 \times 4 =$



a. $3 + 3 =$
b. $2 \times 3 =$



a. $2 + 2 + 2 + 2 =$
b. $4 \times 2 =$



a. $6 + 6 + 6 =$
b. $3 \times 6 =$



a. $5 + 5 + 5 + 5 + 5 =$
b. $5 \times 5 =$

7. a. $3 + 3 + 3 =$
b. $3 \times 3 =$

8. a. $4 + 4 + 4 =$
b. $3 \times 4 =$

9. a. $5 + 5 + 5 =$
b. $3 \times 5 =$

10. a. $6 + 6 =$
b. $2 \times 6 =$

11. a. $2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 =$
b. $8 \times 2 =$

12. a. $4 + 4 + 4 + 4 + 4 + 4 =$
b. $6 \times 4 =$

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13. El "Tour" de Francia es la carrera de ciclistas más famosa del mundo. Cada ciclista tiene 3 bicicletas para ruedas. Si cada bicicleta tiene 2 ruedas. ¿Cuántas ruedas tiene cada ciclista?

14. En Grecia hay una "ruina" (un edificio muy antiguo) con 5 columnas en cada una las 4 paredes. ¿Cuántas columnas tienes por todo?

THIRD
ACTIVITY
FOR
SKILL F

Converting an addition problem to a multiplication problem and vice versa.

Show the students 4 nickels. Ask how they find out how much 4 nickels are. Have them add 4 nickels. $5c + 5c + 5c + 5c = \square$. Have the children examine the addition problem and ask them how they would change that problem to a multiplication problem. To find out how much 4 nickels are, you would multiply $4 \times 5c = \square$.

Give a few more examples. Have the students convert the repeated addition problem to a multiplication problem. $3 + 3 + 3 + 3 + 3 = \square$. Ask the children what number is being added over and over again. Ask the children how many 3's there are! By answering these questions, they should be able to write the multiplication sentence:

$$5 \times 3 = \square$$

The number of 3's being added. The number being added over and over again.

After converting addition problems to multiplication problems, do the reverse.

Present a multiplication sentence and say that they are going to make a repeated addition problem from the multiplication sentence.

$$4 \times 5 =$$

Explain: The 5 will be the number added over and over again. The 4 will represent the number of times the 5 will be added. Do the example together.

$$4 \times 5 = 20 \quad 5 + 5 + 5 + 5 = 20$$

They both mean the same thing

Give as many examples as necessary.

THIRD ACTIVITY FOR SKILL F (CONTINUED)

To give further practice in converting addition to multiplication and vice versa, prepare the following types of written exercises:

Cambia las ecuaciones de suma a ecuaciones de multiplicación. Resuelve.

1. $3 + 3 + 3 + 3 = 12$

___ $\times$ ___ =

2. $4 + 4 + 4 + 4 = 16$

___ $\times$ ___ =

3. $2 + 2 + 2 + 2 + 2 = \square$

___ $\times$ ___ =

4. $5 + 5 + 5 + 5 = \square$

___ $\times$ ___ =

5. $6 + 6 = \square$

___ $\times$ ___ =

Cambia las ecuaciones de multiplicación a ecuaciones de suma repetida.

6. $3 \times 5 = 15$

_____ =

7. $4 \times 3 = 12$

_____ =

8. $2 \times 9 = \square$

_____ =

9. $5 \times 5 = \square$

_____ =

10. $6 \times 3 = \square$

_____ =

SKILL G: Representing a multiplication problem as an array.

- NOTE: (1) Arrays are a very fine teaching tool to help children visually understand and compute multiplication and division problems. If children can draw an array from a multiplication sentence, they can usually solve the problem.
- (2) Arrays appear in many different forms in our everyday life. An egg carton is an array. The overhead lights or ceiling panels in the classroom form arrays. A stamp or coin collecting book has arrays on every page. When talking about arrays with children, ask them to be on the look out for arrays. In the activities, the authors will suggest using counters, blocks, or a pegboard to explain arrays, but really, any array can be used.

FIRST
ACTIVITY
FOR
SKILL G

TEACHING THE CONCEPT OF AN ARRAY.

With the children watching, take 10 counters or blocks and throw them in the floor or table so they land in a haphazard way. Without allowing the children to touch the blocks, ask the children to quickly count the blocks. Most likely, they will encounter difficulty.



Organize the blocks into two rows, the blocks. Ask why it was easier rather than the first.



Then ask the children again to count to count the blocks the second time

Discuss with the students how organizing objects into a pattern can help us tell how many. Give a few more block examples, first throwing the blocks and then organizing them into a pattern.

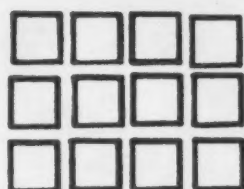
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FIRST
ACTIVITY
FOR
SKILL G
(CONTINUED)

Discuss that patterns with rows made up of an equal number of objects are called arrays.
Show the following:

Examples of patterns that are arrays.



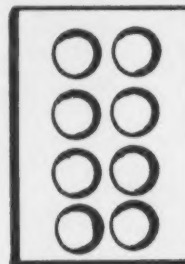
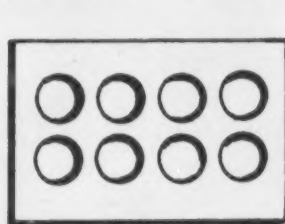
Examples of patterns that are not arrays.



Draw patterns on the chalkboard and have the children circle the arrays. Ask the children to draw some arrays on the chalkboard or on a piece of paper.

SECOND
ACTIVITY
FOR
SKILL C

NOTE: A set of array cards can be made using a hole punch. Each card can be used to show two different arrays. See the example cards below.



Using array cards, a pegboard, or blocks, present the following array.

Ask how many rows there are in the array.
Ask how many blocks there are in each row.
Ask how many blocks there are all together.

Then discuss how the array shows the multiplication sentence

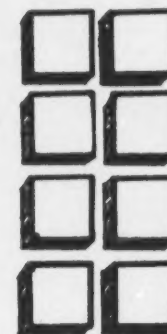
$$4 \times 2 = 8$$

Explain:

number in each row

number of rows

number in all



Discuss that arrays can be used to help the children visually represent and compute multiplication problems.

Present other arrays and make multiplication sentences for each array.

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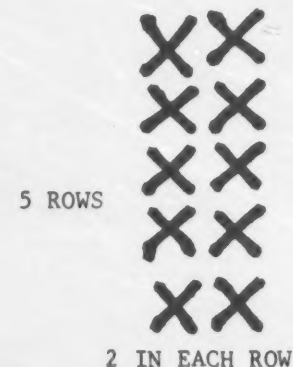
THIRD
ACTIVITY
FOR
SKILL C

Have the children make arrays from multiplication sentences and use the arrays to solve the problems.

Write 5×2 on the chalkboard. Review that the 5 signifies the number of rows that must be drawn, the 2 signifies the number in each row. If the children correctly draw the array, by counting all the items (X's) in the array, it will be possible to solve the problem. Together draw the array, drawing 5 rows with 2 items in each row. (X's or O's or $\square$'s can be drawn to show the array.)

Ask the students to count the number of X's there are in all.

NOTE: Sometimes children will not correctly draw the arrays. Give extra assistance to those who need it and make sure they understand the first factor signifies the number of rows that must be drawn and the second factor represents the number in each row. By counting all the X's, they will solve the problem.

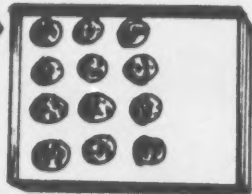


Give more multiplication problems and have the children draw arrays to represent the problems and help them in solving for the products.

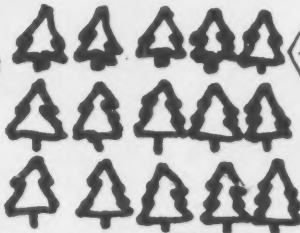
THIRD ACTIVITY FOR SKILL G (CONTINUED)

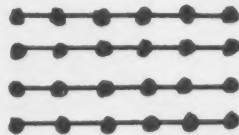
To provide further practice working with arrays in multiplication, prepare a worksheet with the following type of exercises.

Resuelve:

1. 
 $4 \times 3 = \square$

2. 
 $2 \times 6 = \square$

3. 
 $3 \times 5 = \square$

4. 
 $4 \times 6 = \square$

Dibuja un hilara o juego y resuelve:

Ejemplo:

$8 \times 2 = \square$
 número de filas número en cada fila número por todo


 número de filas

5. $4 \times 5 = \square$

6. $7 \times 3 = \square$

7. $2 \times 5 = \square$

8. $1 \times 6 = \square$

9. $6 \times 3 = \square$

10. $4 \times 4 = \square$

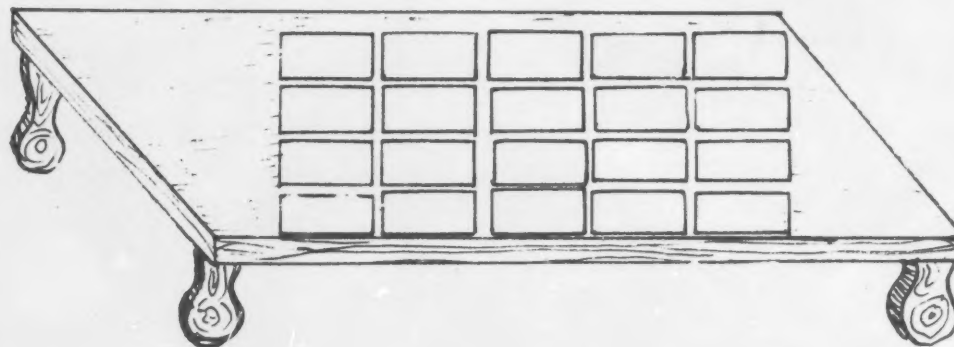
11. $5 \times 5 = \square$

12. $3 \times 8 = \square$

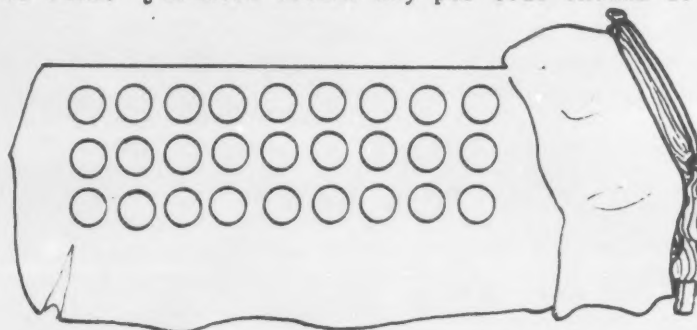
THIRD ACTIVITY FOR SKILL G (CONTINUED)

Written exercise example (continued).

13. Marcos es el nombre que se le da al dinero en Alemania. Amador puso el dinero que su padre tenía hileras sobre una mesa. ¿Cuántos marcos hay en la mesa? Estudia el dibujo y resuelve.



14. En Rusia el dinero se llama rublo. Katerina, quien trabaja en una fábrica de Kiev, siempre pone su sueldo de la semana encima de su cama. ¿Cuántos rublos hay por todo encima de la cama? Estudia el dibujo y resuelve.



SKILL H: Commutative property of multiplication.

VOCABULARY: multiplication sentence
"oración de multiplicación"

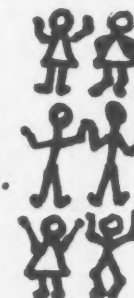
FIRST
ACTIVITY
FOR
SKILL H

(Make an array, using the students as the array items.)

Ask 6 (minimum) students to come to the front of the room and line them up in an array.
First, line them up in 3 rows, 2 children to a row.
Ask the children to write a multiplication sentence for the array. $3 \times 2 = 6$

Then, reline the children into 2 rows with 3 children in each row.
Ask the children to write another multiplication sentence for that array. $2 \times 3 = 6$

Ask the children if there is the same amount of children even though they switched positions.
Then, lead the children to observe that in both multiplication sentences, the factors and the products are the same. Only the order of the factors has changed.



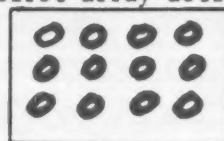
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FIRST
ACTIVITY
FOR
SKILL H
(CONTINUED)

Follow the first array activity with another activity in which array cards are presented.

Show
sentence



Ask the children to write a multiplication
for the array, $3 \times 4 = 12$.

Then turn the card so it appears this way.

Ask the children to write another multiplication
sentence for this array. $4 \times 3 = 12$



Discuss that the order in which two numbers are multiplied does not matter
because the produce will always be the same. Ask which other mathematical
process is like multiplication (addition).

Provide more examples as needed.

SECOND
ACTIVITY
FOR
SKILL H



(Review the idea of an equation.)



Present an array card showing 5 X 2.
you a multiplication sentence. Then turn the card to show that the array can become
2 X 5.

Ask the children to give

But do not ask the children how many 0's are in the arrays.

Write on the board: 5 X 2  2 X 5

To the side, write the symbols: $= \neq < >$.

Review what each symbol means. Ask the children what symbol should be placed between
5 X 2 and 2 X 5 to make the equation true.

Encourage children to see that $=$ (equal) is the correct symbol.

Examine 5 X 2 = 2 X 5. Help the children understand the equation (identify it as such)
in that an equal sign means one side of the equation equals or is the same as the other side.

Give other examples, filling in the $=$ sign.

$$5 \times 3 \quad \bigcirc \quad 3 \times 5 \qquad 4 \times 6 \quad \bigcirc \quad 6 \times 4 \qquad 1 \times 5 \quad \bigcirc \quad 5 \times 1$$

Write the following equations on the chalkboard. Have array cards available for each equation.

a. $3 \times 4 = 4 \times \square$ b. $6 \times 2 = \square \times 6$

Ask the children why the missing factor must be 3 in example (a) and 2 in example (b).

To review the symbols $<$ and $>$ and $=$, develop the following type of examples:

$$\begin{array}{ccc} 2 \times 5 & \bigcirc & 3 \times 5 \\ 4 \times 4 & \bigcirc & 3 \times 3 \end{array} \qquad \begin{array}{ccc} 3 \times 5 & \bigcirc & 5 + 5 + 5 \\ 4 \times 3 & \bigcirc & 3 \times 4 \end{array}$$

Make array drawings to visually demonstrate each equation.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

THIRD
ACTIVITY
FOR
SKILL H

To provide practice in the commutative property of multiplication, prepare a written exercise with the following type of exercises:

I. Escribe una ecuación de multiplicación para cada hilera (juego).

① $\begin{array}{cccccc} \times & \times & \times & \times & \times & \times \\ \times & \times & \times & \times & \times & \times \end{array}$
 $\_\_\_ \times \_\_\_ = \square$

② $\begin{array}{c} \times \times \\ \times \times \\ \times \times \\ \times \times \\ \times \times \\ \times \times \end{array}$ $\_\_\_ \times \_\_\_ = \square$

③ $\begin{array}{cccc} \times & \times & \times & \times \\ \times & \times & \times & \times \\ \times & \times & \times & \times \end{array}$
 $\_\_\_ \times \_\_\_ = \square$

④ $\begin{array}{cccc} \times & \times & \times & \times \\ \times & \times & \times & \times \\ \times & \times & \times & \times \\ \times & \times & \times & \times \end{array}$
 $\_\_\_ \times \_\_\_ = \square$

II. Completa

^a
⑤ $7 \times 1 = \square$

⑥ $5 \times 3 = \square$

⑦ $9 \times 2 = \square$

⑧ $7 \times 3 = 7 \times \square$

⑨ $3 \times 3 = \square \times 3$

⑩ $1 \times 8 = \square \times 1$

^b
 $1 \times 7 = \square$

$3 \times 5 = \square$

$2 \times 9 = \square$

$4 \times 5 = \square \times 4$

$5 \times 6 = 6 \times \square$

$3 \times 0 = \square \times 3$

⑪ Si $3 \times 2 = 6$, entonces $2 \times 3 = \square$

⑫ Si $6 \times 3 = 18$, entonces $3 \times 6 = \square$

⑬ Si $1 \times 5 = 5$, entonces $5 \times 1 = \square$

III. Escribe $<, =, \text{ ó } >$ en el círculo.

⑭ $2 \times 5 \bigcirc 5 \times 3$

⑮ $3 + 3 \bigcirc 3 \times 3$

⑯ $2 \times 6 \bigcirc 4 \times 3$

⑰ $3 \times 4 \bigcirc 4 \times 3$

⑱ $3 + 2 \bigcirc 3 \times 2$

⑲ $7 + 7 \bigcirc 2 \times 7$

THIRD
ACTIVITY
FOR
SKILL H
(CONTINUED)

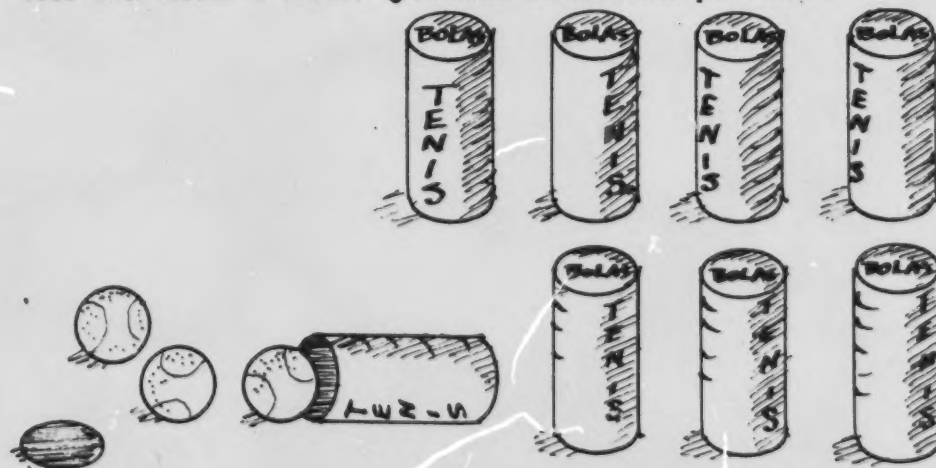
Written exercise (continued).

IV. Resuelve

- a. Portugal es famoso para su vino. Si comprás 4 cajas de vino con 6 botellas en cada caja. ¿Cuántas botellas hay en total?



- b. Bjorn Borg, el gran jugador de tenis de Suecia tiene 8 latas de bolas de tenis. Cada lata tiene 3 bolas. ¿Cuántas bolas tiene por todo?



MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

SKILL I: Recognizing division terms symbols and explaining the concept of division.

VOCABULARY:

division sentence
divisor
dividend
quotient

"oracion de division"
"divisor"
"dividendo"
"cociente"

**FIRST
ACTIVITY
FOR
SKILL I**

Prepare a bulletin board display or ditto with the drawing below. This visual will be used with the story, "Igor, el cosaco." This story will explain the symbols, terms and the concept of division. Using the visual, read, "Igor, el cosaco," which follows.



IGOR
(divisor)

HUMO
(cociente)



CHOZA
(dividendo)

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FIRST
ACTIVITY
FOR
SKILL I
(CONTINUED)

Igor, el cosaco

Los cosacos en Rusia eran tan buenos guerreros y cabalgadores que se consideraban muy temibles. Hoy día, todavía se respetan por su fuerza de carácter, su talento cabalgando y por sus exitantes bailes.

Igor, el cosaco, nos va a enseñar sobre la división.

Aquí está Igor (point to Igor) y esta es un choza de cosacos (point to the hut). Las chozas tienen en el techo un hueco por donde sale el humo cuando se hace una fogata adentro.

Vamos a averiguar cuantos Igors caben dentro de la choza. Igor entra en la choza, mide y después con señales de humo nos dá la respuesta.

La división es la forma que se usa para tratar de averiguar cuantos Igors caben en la choza.

(Show division examples with numbers.) En la división con números se trata de averiguar cuantos de un número, por ejemplo 2, caben dentro de otro, por ejemplo 10. Se demuestra de estas formas:

$$10 \div 2 = 5 \quad \text{ó} \quad 2 \overline{)10}$$

Ambas se leen; 10 dividido entre dos = 5. Cada una de estas oraciones de división tiene su nombre:

$\div$ y $\overline{\hspace{1cm}}$ son los símbolos de división. Siempre que veas uno de ellos sabes que tienes que dividir.

Aprenderemos los nombres de los números de acuerdo a su posición si nos acordamos de Igor y su choza.

El número 10 en ese lugar es el dividendo o el número que ha de ser dividido (la choza). El número 2 es el divisor o el número que entra dentro del dividendo (Igor). El número 5 en ese lugar es el cociente (La respuesta) o el número de veces que el divisor cabe dentro del dividendo (señales de humo).

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

FIRST
ACTIVITY
FORSKILL I
(CONTINUED)

After reading and discussing the story, review the terms, symbols and division concept by doing some of the following chalkboard activities.

1. Write $\div$ and $\overline{)$ and ask what the symbols mean. Write +, -, and X to review those symbols.
2. Write "divisor, dividendo and cociente" along with 2 blank division sentences.

divisor $\overline{)$ $\begin{matrix} \text{cociente} \\ \text{dividendo} \end{matrix}$ divisor
dividendo
cociente dividendo $\div$ divisor = cociente

Have the children write the three words within the division sentences, positioning the words in the proper places.

3. Match the pairs or words.

Igor dividendo
humo divisor
choza cociente

4. Write some division sentences. $12 \div 4 = 3$

$$\begin{array}{r} 3 \\ 5 \overline{) 15} \end{array}$$

Have the children study the division sentences and then pick out the dividends, divisors and the quotients.

Dividendos 12 y 15
Divisores _____ y _____
Cocientes _____ y _____

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SKILL J: Division as repeated subtraction.

VOCABULARY:

division
subtraction
dividend
divisor
quotient

"división"
"resta"
"dividendo"
"divisor"
"cociente"

FIRST
ACTIVITY
FOR
SKILL J

Continue reading the story of Igor:

Igor encontró que podía explicarnos la división en otra forma. Usando su espada, cortó, pedazo por pedazo, partes de la choza que igualaba su medida y las sacaba hasta que no quedó techo ni pared. Quitando pedazo por pedazo descubrió que estaba restando repetidas veces. Al contar el número de pedazos al final encontró que ese era el número de veces que cabía en la choza.

División con numeros es lo mismo que restar el mismo número repetidas veces. Pro ejemplo en

$$10 \div 2 = \square$$

, se le resta 2 al 10 una y otra vez hasta que no sobre nada. Entonces se cuentan cuántos 2 se tuvieron que restar y ese es el resultado.

$$\begin{array}{r} 10 \\ -2 \\ \hline 8 \\ -2 \\ \hline 6 \\ -2 \\ \hline 4 \\ -2 \\ \hline 2 \\ -2 \\ \hline 0 \end{array} \quad \begin{array}{l} 1 \\ 2 \\ 3 \\ 4 \\ 5 \end{array}$$

se restó 5 veces.

asi es que $10 \div 2 = 5$

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MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

FIRST
ACTIVITY
FOR

Use the following exercise as a ditto for students to understand repeated subtraction in division.

SKILL J
(CONTINUED)

Have the children cut out Igor, trace him in the hut and cut out piece by piece. Count how many Igors can be cut out and subtracted from the hut.

This picture would
represent

$$6 \div 1 = \boxed{?}$$

$$\begin{array}{r} 6 \\ 1 \overline{) 6} \\ \underline{6} \\ 0 \end{array}$$

IGOR



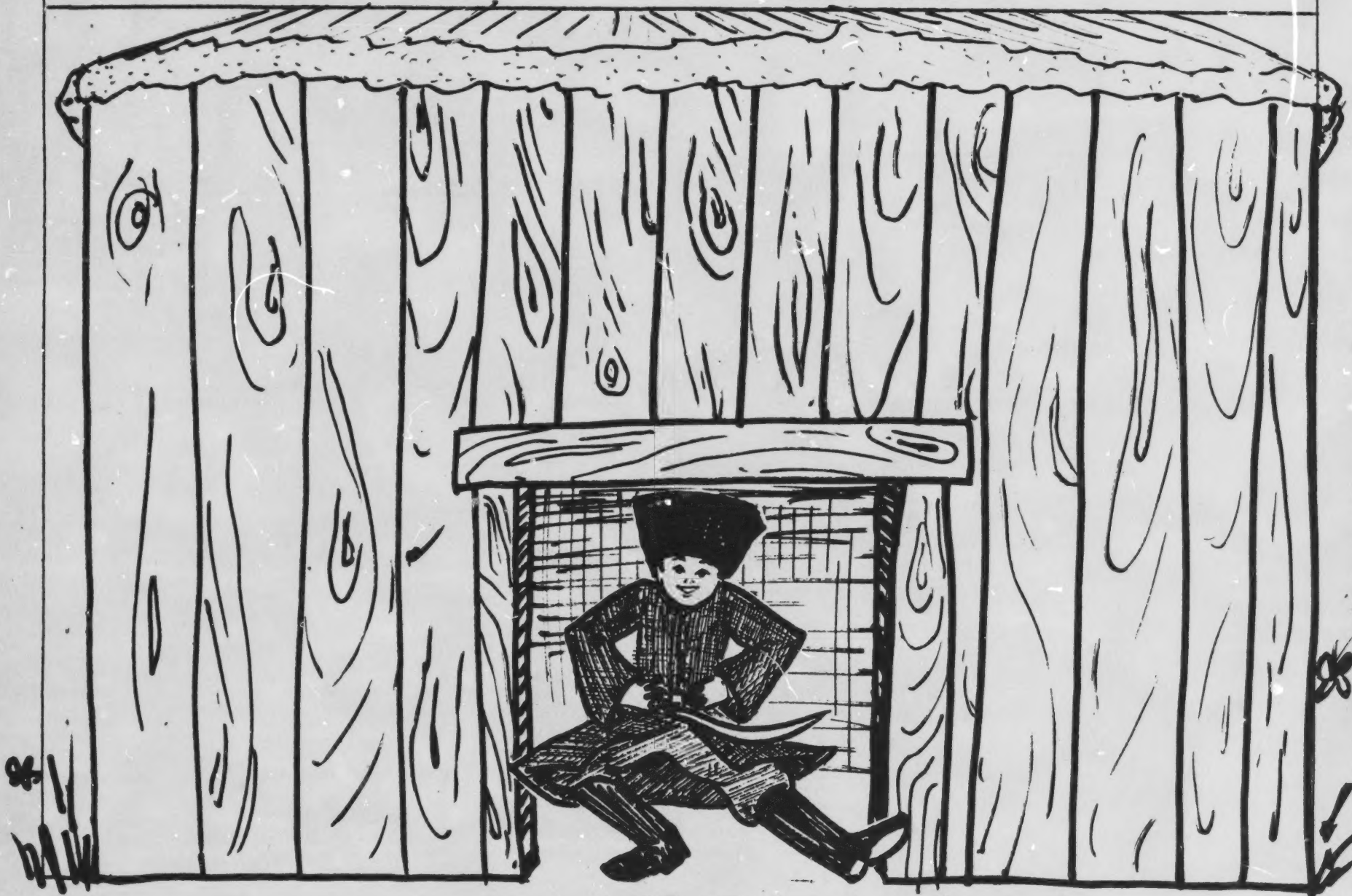
HUT



IGOR

483

489



IGOR

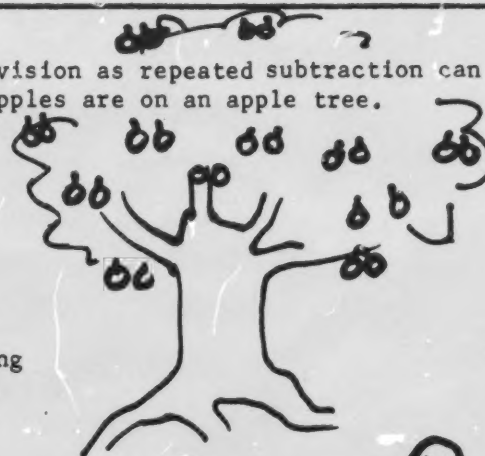
MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

FIRST
ACTIVITY
FOR
SKILL J
(CONTINUED)

Other visual representations of division as repeated subtraction can be shown. One might be finding out how many pairs of apples are on an apple tree.

1. Draw an apple tree.
2. Instruct children they are going to make baskets of apples; two to a basket.
3. Count the number of apples and call that number the dividend. (24)
4. To find out how many pairs (2's) are in the tree, divide 2 into 24. Call 2 the divisor.
5. Have children pick off the pairs of apples and put them in baskets.
6. When all the pairs of apples are picked, Count the baskets of apples and you have the quotient. To find the quotient, 2 was subtracted over and over again from the original 24.

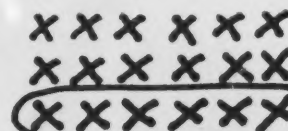


$$24 \div 2 = 12$$

SECOND
ACTIVITY
FOR
SKILL J

Prepare a written exercise to give students practice in using division as repeated subtraction. Children will need assistance, at first, in doing the problems. Make sure they understand they must keep subtracting the divisor from the dividend, until no dividend remains.

Giving some examples using X's in arrays will help. For example, in the problem: $18 \div 6 = \square$
Draw 18 X's in rows of 6.



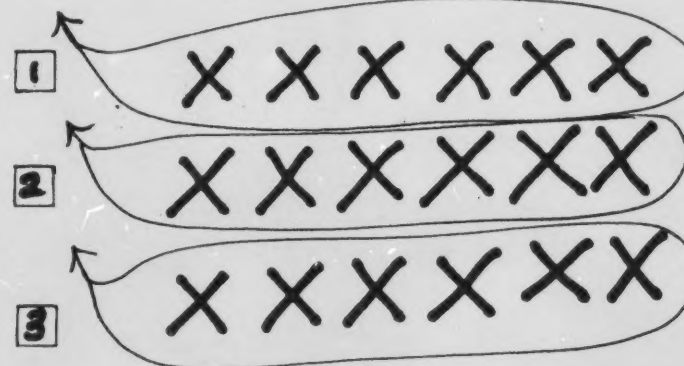
Write $18 \div 6 = \square$ and on the board.

When you subtract ~~6 from 18~~ $\begin{array}{r} 18 \\ - 6 \\ \hline 12 \end{array}$ draw a circle around 6 X's and take them away

The children will then visually see there are 12 left.

Continue doing the same thing until the children see you cannot subtract anymore 6's (divisor) from the dividend. Count the 6's subtracted and you have the quotient.

$$\begin{array}{r} 18 \\ - 6 \\ \hline 12 \\ - 6 \\ \hline 6 \\ - 6 \\ \hline 0 \end{array}$$



$$18 \div 6 = \boxed{3}$$

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

SECOND
ACTIVITY
FOR
SKILL J

WRITTEN EXERCISE:

Resuelve. Usa la resta repetida.

$$1. 15 \div 5 = \square$$

$$\begin{array}{r} 15 \\ -5 \\ \hline 10 \\ -5 \\ \hline 5 \\ -5 \\ \hline 0 \end{array}$$

$$2. 9 \div 3 = \square$$

$$\begin{array}{r} 9 \\ -3 \\ \hline 6 \\ -3 \\ \hline 3 \\ -3 \\ \hline 0 \end{array}$$

$$3. 8 \div 2 = \square$$

$$\begin{array}{r} 8 \\ -2 \\ \hline 6 \\ -2 \\ \hline 4 \\ -2 \\ \hline 2 \\ -2 \\ \hline 0 \end{array}$$

$$4. 2 \overline{)12}$$

$$\begin{array}{r} 12 \\ -2 \\ \hline 10 \\ -2 \\ \hline 8 \\ -2 \\ \hline 6 \\ -2 \\ \hline 4 \\ -2 \\ \hline 2 \\ -2 \\ \hline 0 \end{array}$$

$$5. 4 \overline{)24}$$

$$\begin{array}{r} 24 \\ -4 \\ \hline 20 \\ - \\ \hline - \\ - \\ \hline - \\ - \\ \hline - \\ - \\ \hline 0 \end{array}$$

$$6. 3 \overline{)21}$$

$$\begin{array}{r} 21 \\ -3 \\ \hline \end{array}$$

SKILL K

Representing division as an array.

VOCABULARY:

array "juego"

NOTE: Using arrays with division is an excellent way to visually show division and help children compute division problems.

FIRST
ACTIVITY
FOR
SKILL K

Let's eat some peanuts. (For a group of four children, this activity can be adapted for more or less children.)

Bring 20 peanuts to school. Gather the group of children around a desk next to a chalkboard. Place the peanuts on top of the desk in a haphazard way. Tell the children you are going to divide the peanuts equally among the children. Ask them if they know of a way to divide the peanuts so that each child gets the same number of peanuts.

Discuss with them that division can help them. Review with the children what an array is. (It was covered in Skill G, Unit IV.)

Write the problem on the chalkboard. $4 \overline{) 20}$ or $20 \div 4 =$.

Discuss that there are 20 peanuts and they have to be divided equally among four students. Ask if someone can make an array out of the peanuts to show and help solve the problem.

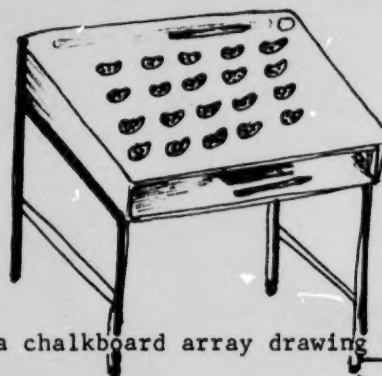
In the problem solving process, encourage the children to understand that they must make four groups or rows of peanuts if an array is to determine how many peanuts each person will get. Make sure the rows have the same number of peanuts and that all the peanuts are used up.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

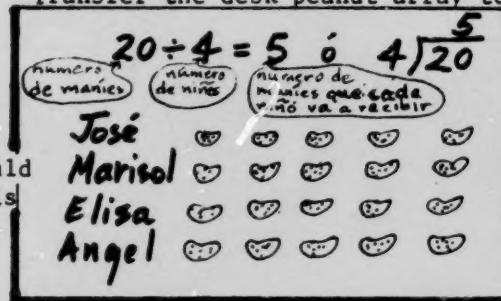
FIRST
ACTIVITY
FOR
SKILL K
(CONTINUED)

The array might appear as below.



Transfer the desk peanut array to a chalkboard array drawing representing the problem.

The array could
look like this



or this



Discuss how each child is going to receive five peanuts. Give several more examples of the same thing using concrete objects such as: blocks, counters, beans, etc.

SECOND
ACTIVITY
FOR
SKILL K

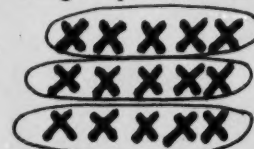
HOW TO DRAW AN ARRAY TO REPRESENT A DIVISION PROBLEM.

Once sufficient examples have been given using concrete objects, present a series of divisions problems and have the children draw arrays to represent each problem. Present the problem:

$$15 \div 5 = \square$$

Discuss with the children that they are trying to find out how many 5's or groups of 5 are in 15.

Instruct them to draw 15 X's, putting the X's in groups or rows of 5's. Then have the children draw circles around the groups of 5's. Count the circles (groups of 5's) and you have the quotient.

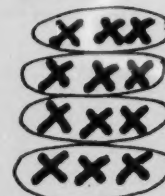


Continue with as many examples as necessary.

The procedure to follow is:

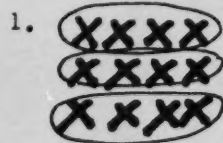
EXAMPLE $12 \div 3 = 4$

1. Draw X's equal to the dividend (12 X's).
2. Draw the X's in groups equal to the divisor.
(3 X's in each row.)
3. Draw a circle around the groups equal to the divisor. The number of groups is the quotient (4).

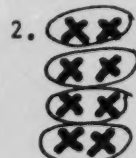


To give further practice using arrays to solve division problems, prepare the following type of exercises.

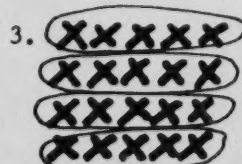
I. Completa cada oración de división.



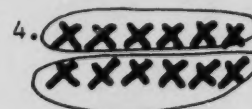
$$12 \div 4 = \square$$



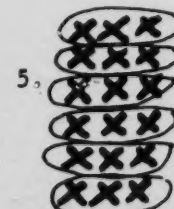
$$8 \div 2 = \square$$



$$20 \div 5 = \square$$



$$12 \div 6 = \square$$



$$18 \div 3 = \square$$

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

SECOND
ACTIVITY
FOR
SKILL K
(CONTINUED)

II, Resuelve. Dibuja un juego para cada problema.

6. $4 \div 2 = \square$

7. $12 \div 2 = \square$

8. $14 \div 7 = \square$

9. $12 \div 3 = \square$

10. $16 \div 4 = \square$

11. $9 \div 3 = \square$

12. $25 \div 5 = \square$

13. $24 \div 4 = \square$

14. $27 \div 3 = \square$

SKILL L:

Multiplication and division
as inverse operations.

VOCABULARY:

missing factor
quotient
inverse
related

"factor que falta"
"cociente"
"inversa"
"relacionados"

FIRST
ACTIVITY
FOR
SKILL L

Review how addition and subtraction are related or inverse operations.

Write $8 - 3 = \square$, $\square + 3 = 8$ on the board and show that

these numbers are the same.

Discuss that when we subtract, we find a missing addend. Give other examples as needed.

After this review, discuss how multiplication and division are also related. Tell them they are just like brother and sister. Write several division sentences which require a quotient and at the same time, write a corresponding multiplication sentence showing a missing factor.

$$12 \div 4 = \square \text{ and } \square \times 4 = 12$$

After the children see the quotient and product are the same numbers, discuss that when they divide, they find a missing factor. Give other examples relating division and multiplication.

MATHEMATICS CURRICULUM FOR GRADE THREE

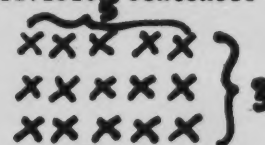
UNIT IV: EUROPE

SECOND
ACTIVITY
FOR
SKILL L

USING ARRAYS TO SHOW MULTIPLICATION AND DIVISION AS INVERSE OPERATIONS.

From the same array, related multiplication and division sentences can be written.

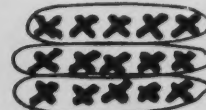
Draw the following array on the chalkboard:



$$3 \times 5 = 15$$

From this array, have the children:

1. Write a multiplication sentence ($5 \times 3 = 15$)
2. Have them make 2 division sentences. ($15 \div 3 = 5$ and $15 \div 5 = 3$) It is easy to show each of these division sentences.



$$15 \div 5 = 3$$



$$15 \div 3 = 5$$

By seeing that an array can help visualize inverse multiplication and division sentences, it helps children understand how multiplication and division are related. Repeat the activity with other arrays, having the students write one multiplication sentence and one division sentence.

THIRD
ACTIVITY
FOR
SKILL L

USING ARRAYS IN DIVISION AS FINDING A MISSING FACTOR.

Discuss with children that they can use arrays to find a quotient by looking for a missing factor.

$$18 \div 3 = \square$$

quotient

$$\square \times 3 = 18$$

missing factor

Draw the following array on the chalkboard.



$$18 \div 3 = 6$$

Discuss each number

número
por
todo

número
de
cada
fila

cociente,
número de
grupos de
3.

$$6 \times 3 = 18$$

número
de
grupos
de 3.

número
en
cada
fila

número
por
todo

Review that $18 \div 3 = 6$ and $6 \times 3 = 18$ are related sentences.

WHAT NUMBER

Discuss that to find $18 \div 3 = \square$, look for $\square \times 3 = 18$. Have the children count the number of groups of 3 in the array, and they will have the missing factor. That factor will have to be the quotient.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

THIRD
ACTIVITY
FOR
SKILL L
(CONTINUED)

To give further practice, prepare a worksheet with the following types of exercises.

I. Estudia el juego. Encuentra el cociente buscando el factor.

a. $\begin{array}{cccc} \times & \times & \times & \times \\ \times & \times & \times & \times \\ \times & \times & \times & \times \end{array}$ $12 \div 4 = \square$; $\square \times 4 = 12$

c. $\begin{array}{cccccc} \times & \times & \times & \times & \times & \times \\ \times & \times & \times & \times & \times & \times \\ \times & \times & \times & \times & \times & \times \\ \times & \times & \times & \times & \times & \times \end{array}$ $24 \div 6 = \square$
 $\square \times 6 = 24$

b. $\begin{array}{cccc} \times & \times & \times & \times \\ \times & \times & \times & \times \\ \times & \times & \times & \times \\ \times & \times & \times & \times \end{array}$ $15 \div 3 = \square$
 $\square \times 3 = 15$

d. $\begin{array}{cccc} \times & \times & \times & \times \\ \times & \times & \times & \times \\ \times & \times & \times & \times \\ \times & \times & \times & \times \\ \times & \times & \times & \times \end{array}$ $20 \div 4 = \square$
 $\square \times 4 = 20$

II. Encuentra el cociente buscando el factor. Dibuja un juego si es necesario.

e. $10 \div 5 = \square$; $\square \times 5 = 10$

f. $12 \div 3 = \square$; $\square \times 3 = 12$

g. $8 \div 2 = \square$; $\square \times 2 = 8$

h. $16 \div 4 = \square$; $\square \times 4 = 16$

THIRD
ACTIVITY
FOR
SKILL L
(CONTINUED)

III. Resuelve los productos o cocientes.

i. Si $3 \times 2 = 6$, entonces $6 \div 2 = \square$

xx
xx
xx

xx
xx
xx

j. Si $2 \times 6 = 12$, entonces $12 \div 6 = \square$

xxxxxx
xxxxxx

xxxxxx
xxxxxx

k. Si $3 \times 7 = 21$, entonces $21 \div 7 = \square$

xxxxxxx
xxxxxxx
xxxxxxx

xxxxxxx
xxxxxxx
xxxxxxx

l. Si $14 \div 2 = 7$, entonces $2 \times 7 = \square$

xx
xx
xx
xx
xx
xx
xx
xx

xx
xx
xx
xx
xx
xx
xx
xx

m. Si $12 \div 4 = 3$, entonces $3 \times 4 = \square$

xxxx
xxxx
xxxx

xxxx
xxxx
xxxx

n. Si $8 \div 4 = 2$, entonces $2 \times 4 = \square$

xxxx
xxxx

xxxx
xxxx

FOURTH
ACTIVITY
FOR
SKILL L

Written exercise to write a multiplication sentence and a division sentence from a given array.

Escribe una ecuación de multiplicación y división para cada juego.

1. $\begin{array}{c} \times \times \times \\ \times \times \times \\ \times \times \times \\ \times \times \times \end{array}$

$4 \times 3 = 12$

$12 \div 3 = 4$

2. $\begin{array}{c} \times \times \times \times \\ \times \times \times \times \end{array}$

$\_ \times \_ = \square$

$\_ \div \_ = \square$

3. $\begin{array}{c} \times \times \\ \times \times \\ \times \times \\ \times \times \end{array}$

$\_ \times \_ = \square$

$\_ \div \_ = \square$

4. $\begin{array}{c} \times \times \times \times \times \times \\ \times \times \times \times \times \times \end{array}$

$\_ \times \_ = \square$

$\_ \div \_ = \square$

5. $\begin{array}{c} \bullet \bullet \bullet \bullet \\ \bullet \bullet \bullet \bullet \\ \bullet \bullet \bullet \bullet \\ \bullet \bullet \bullet \bullet \end{array}$

$\_ \times \_ = \square$

$\_ \div \_ = \square$

6. $\begin{array}{c} \square \square \square \square \square \\ \square \square \square \square \square \\ \square \square \square \square \square \end{array}$

$\_ \times \_ = \square$

$\_ \div \_ = \square$

7. $\begin{array}{c} \circ \circ \circ \circ \circ \circ \circ \circ \\ \circ \circ \circ \circ \circ \circ \circ \circ \\ \circ \circ \circ \circ \circ \circ \circ \circ \end{array}$

$\_ \times \_ = \square$

$\_ \div \_ = \square$

8. $\begin{array}{c} // // // // \\ // // // // \end{array}$

$\_ \times \_ = \square$

$\_ \div \_ = \square$

FIFTH
ACTIVITY
FOR
SKILL L

DISCUSS: Given a multiplication sentence, write the related division sentence, or given a division sentence, write the related multiplication sentence. If children understand how multiplication and division are related, if they know a multiplication fact, they also should know the 2 related division facts.

For example: if a student knows $7 \times 2 = 14$. Then he/she can easily write and solve $14 \div 2 = 7$ and $14 \div 7 = 2$.

Show it this way: $7 \times 2 = 14$

$$\begin{array}{l} 14 \div 7 = 2 \\ 14 \div 2 = 7 \end{array}$$

Prepare a worksheet as follows.

I. Escribe la oración de división que corresponde con la oración de multiplicación.

1. $3 \times 5 = 15 / 15 \div 3 = \boxed{5}$ 2. $9 \times 2 = 18 / \_ \div \_ = \boxed{}$ 3. $4 \times 2 = 8 / \_ \div \_ = \boxed{}$

II. Escribe la oración de multiplicación que corresponde con la oración de división.

4. $16 \div 2 = 8 / 8 \times 2 = \boxed{16}$ 5. $10 \div 5 = 2 / \_ \times \_ = \boxed{}$ 6. $9 \div 3 = 3 / \_ \times \_ = \boxed{}$

III. Resuelve el producto y escribe dos oraciones de división que son correspondientes.

7. $5 \times 2 = \boxed{10}$
 $\frac{10}{2} \div 2 = \boxed{5}$
 $\frac{10}{5} \div 5 = \boxed{2}$

8. $4 \times 3 = \boxed{}$
 $\_ \div \_ = \boxed{}$
 $\_ \div \_ = \boxed{}$

9. $8 \times 2 = \boxed{}$
 $\_ \div \_ = \boxed{}$
 $\_ \div \_ = \boxed{}$

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

SIXTH
ACTIVITY
FOR
SKILL L

Prepare a Matching Game in which related multiplication and division sentences are printed on 2" x 3" cards. Write the multiplication sentences in red and the related division sentences in blue. Group the multiplication sentences separate from the division sentences. The number of cards that are prepared is up to the teacher. Turn the cards face down. Pick up one multiplication card and then pick up one division card to see if they are related and form a match. If they match, the player keeps the cards. If they do not match, both cards are returned, face down, to the table. The player with the most matches at the end of the game is the winner.

Examples of the Card Preparation.

$2 \times 3 = 6$	$3 \times 3 = 9$	$4 \times 5 = 20$	$2 \times 1 = 2$
------------------	------------------	-------------------	------------------

$3 \times 4 = 12$	$5 \times 2 = 10$	$5 \times 3 = 15$	$5 \times 4 = 20$
-------------------	-------------------	-------------------	-------------------

$6 \times 1 = 6$	$6 \times 2 = 12$	$6 \times 3 = 18$	$6 \times 4 = 24$
------------------	-------------------	-------------------	-------------------

$7 \times 1 = 7$	$7 \times 2 = 14$	$7 \times 3 = 21$	$7 \times 4 = 28$
------------------	-------------------	-------------------	-------------------

$8 \times 3 = 24$	$3 \times 9 = 27$	$9 \times 2 = 18$	$7 \times 0 = 0$
-------------------	-------------------	-------------------	------------------

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Multiplication (Red)

$6 \div 3 = 2$	$9 \div 3 = 3$	$20 \div 4 = 5$	$2 \div 2 = 1$
----------------	----------------	-----------------	----------------

$12 \div 3 = 4$	$10 \div 2 = 5$	$15 \div 3 = 5$	$20 \div 5 = 4$
-----------------	-----------------	-----------------	-----------------

$6 \div 1 = 6$	$12 \div 6 = 2$	$18 \div 6 = 3$	$24 \div 6 = 4$
----------------	-----------------	-----------------	-----------------

$7 \div 7 = 1$	$14 \div 7 = 2$	$21 \div 7 = 3$	$28 \div 7 = 4$
----------------	-----------------	-----------------	-----------------

$24 \div 3 = 8$	$27 \div 3 = 9$	$18 \div 9 = 2$	$7 \div 0 = 0$
-----------------	-----------------	-----------------	----------------

Division (Blue) 521

SKILL M: Multiplication and division through the tables of 5.

NOTE #1: In the previous skills, the following topics have been dealt with. Therefore, they will not be dealt with in this skill.

- a. Explanation of concepts of multiplication and division.
- b. Using arrays, repeated addition and subtractions as methods to compute multiplication and division.

NOTE #2: Because of their relationship, the instruction of the multiplication and division tables are being presented together.

**FIRST
ACTIVITY
FOR
SKILL M**

MULTIPLICATION AND DIVISION WITH ZERO (0).

Present the problem $0 \times 4 = \square$ on the chalkboard as a repeated addition problem. Ask the child what the answer would be. Repeat the same thing with another problem. Lead children to recognize that whenever you multiply a number by zero, or zero is a factor in a multiplication sentence, the answer is always going to be zero.

Present the problem $5 \div 0 = \square$ and $0 \div 5 = \square$ on the chalkboard. Lead children to recognize that whenever the divisor or the dividend is zero, the quotient will always be zero.

Repeat giving other examples. One example that is fun is to ask the children to solve $9.999.999 \div 0 = \square$. The answer of course is zero.

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MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

FIRST
ACTIVITY
FOR
SKILL M
(CONTINUED)

Develop a worksheet to practice multiplying and dividing by zero.

Resuelve:

$$1. \quad 0 \times 4 = \boxed{}$$

$$2. \quad 8 \times 0 = \boxed{}$$

$$3. \quad 7 \times 0 = \boxed{}$$

$$4. \quad 16 \times 0 = \boxed{}$$

$$5. \quad 7 \div 0 = \boxed{}$$

$$6. \quad 9 \div 0 = \boxed{}$$

$$7. \quad 18 \div 0 = \boxed{}$$

$$8. \quad 0 \div 5 = \boxed{}$$

$$9a. \quad 5 \times 0 = \boxed{}$$

$$b. \quad 5 \div 0 = \boxed{}$$

$$10a. \quad 6 \times 0 = \boxed{}$$

$$b. \quad 6 \div 0 = \boxed{}$$

$$11a. \quad 3 \times 0 = \boxed{}$$

$$b. \quad 3 \div 0 = \boxed{}$$

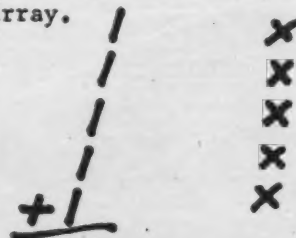
$$12a. \quad 2 \times 0 = \boxed{}$$

$$b. \quad 2 \div 0 = \boxed{}$$

SECOND
ACTIVITY
FOR
SKILL M

MULTIPLYING AND DIVIDING WITH 1.

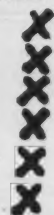
Present on the chalkboard 5×1 . Show how you can solve for the product by repeated addition or by drawing an array.



Repeat with other examples. *Lead children to recognize:

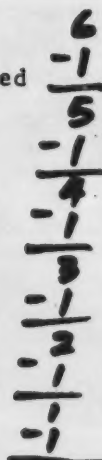
1. The product of any number times 1 is the number. $8 \times 1 = 8$
2. The product of 1 times any number is the number. $1 \times 99 = 99$

Present the problem $6 \div 1 = \square$. Solve for the quotient by drawing an array and by repeated subtraction.



$$6 \div 1 = 6$$

$$6 \div 1 = 6$$



REPEAT with other examples dividing by 1.

*Lead children to recognize that whenever any number is divided by 1, the quotient is the number.

Then present the problem $5 \div 5 = \square$. Solve in the same way. Present other problems in which numbers are being divided by themselves. *Lead the children to recognize that the quotient of any number (except 0) divided by itself is 1.

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SECOND ACTIVITY FOR SKILL M (CONTINUED)

Example written worksheet for multiplication and division with 1.

Resuelve:

1. $5 \times 1 = \square$

2. $8 \times 1 = \square$

3. $1 \times 7 = \square$

4. $1 \times 99 = \square$

5. $25 \times 1 = \square$

6. $2 \times 1 = \square$

7. $5 \div 1 = \square$

8. $6 \div 1 = \square$

9. $10 \div 1 = \square$

10. $1 \overline{)6}$

11. $1 \overline{)8}$

12. $1 \overline{)16}$

13. $5 \div 5 = \square$

14. $3 \div 3 = \square$

15. $9 \div 9 = \square$

16. a. $6 \times 1 = \square$

17. a. $4 \times 1 = \square$

18. a. $8 \times 1 = \square$

b. $6 \div 1 = \square$

b. $4 \div 1 = \square$

b. $8 \div 1 = \square$

c. $6 \div 6 = \square$

c. $4 \div 4 = \square$

c. $8 \div 8 = \square$

THIRD
ACTIVITY
FOR
SKILL M

MAKE DOT ARRAY TABLE AND THEN A MULTIPLICATION/DIVISION TABLE.

Often, a multiplication/division table can be a useful crutch (to eventually be thrown away) to help children compute and then memorize the tables. But, instead of just giving each child an already finished table, it is suggested that the child construct his own table.

Provide each child with a 8" x 11½" piece of oaktag. On one side, the child is going to make a Dot Array Table, from which he/she is going to make the standard Multiplication/Division Table on the reverse side.

The pieces of oaktag given to the students should be like those shown below. The teacher can easily prepare a ditto to duplicate the numbers and lines that appear on the oaktag.

NOTE: When duplicating this on the ditto machine, only run one piece of oaktag at a time through the machine. It will take a little longer but you will not ruin pieces of that expensive oaktag.

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THIRD
ACTIVITY
FOR

SKILL M (CONTINUED)

OAKTAG EXAMPLES FOR DOT ARRAY TABLE AND MULTIPLICATION/DIVISION TABLE.

nombre	TABLA DE PUNTOS $\times/\div$									
	0	1	2	3	4	5	6	7	8	9
0										
1										
2										
3										
4										
5										
6										
7										
8										
9										

ALSO, provide each child with a right angle strip.

RIGHT ANGLE STRIP

nombre	TABLA DE $\times/\div$									
	0	1	2	3	4	5	6	7	8	9
0										
1										
2										
3										
4										
5										
6										
7										
8										
9										

THIRD
ACTIVITY
FOR
SKILL M
(CONTINUED)

As each group of multiplication/division tables are studied and practiced, each child will fill in that part of both charts. For example, when the 2's of multiplication and division are studied, the child would fill in the appropriate part on the charts for the 2's. The same thing would take place for the 3's, 4's, 5's, etc. . .

When studying the 2's of multiplication and division, the student would fill out the Dot Array Table first, drawing in dots where a line extending from the 2 on the left hand column intersects with a line extending from the numbers (factors) at the top of the table. As dots are drawn to accompany each fact, an array is formed. By using the Right Angle Strip, all facts can be shown as an array. Once the Dot Array Table is filled out for each fact, children write in the numerals for each fact on the flip side Multiplication/Division Table.

The tables for the 2's would appear as below.

$2 \times 7 =$ count the dots in the array. There are 14. Transferred to the table below,

nombre Tabla de puntas $\times / \div$									
0	1	2	3	4	5	6	7	8	9
0									
1									
2									

RIGHT ANGLE

nombre TABLA de $\times y \div$									
0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8
2	0	2	4	6	8	10	12	14	16
3	0								

$2 \times 7 = 14$ appears in circle.

To find 2×7 , the child would place the right angle strip on the Dot Array Table as shown above. By counting the dots in the array, he/she would be able to compute the product. The child can count the dots and then write in 14 where 2 intersects with 7 on the standard Multiplication/Division Table. (SEE CIRCLE)

MATHEMATICS CURRICULUM FOR GRADE THREE

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THIRD ACTIVITY FOR SKILL M (CONTINUED)

FINISHED TABLES

nombre	TABLA DE PUNTOS (x/÷)									
	0	1	2	3	4	5	6	7	8	9
0										
1		•	•	•	•	•	•	•	•	•
2		•	•	•	•	•	•	•	•	•
3		•	•	•	•	•	•	•	•	•
4		•	•	•	•	•	•	•	•	•
5		•	•	•	•	•	•	•	•	•
6		•	•	•	•	•	•	•	•	•
7		•	•	•	•	•	•	•	•	•
8		•	•	•	•	•	•	•	•	•
9		•	•	•	•	•	•	•	•	•

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nombre	TABLA DE X y ÷									
	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9
2	0	2	4	6	8	10	12	14	16	18
3	0	3	6	9	12	15	18	21	24	27
4	0	4	8	12	16	20	24	28	32	36
5	0	5	10	15	20	25	30	35	40	45
6	0	6	12	18	24	30	36	42	48	54
7	0	7	14	21	28	35	42	49	56	63
8	0	8	16	24	32	40	48	56	64	72
9	0	9	18	27	36	45	54	63	72	81

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FOURTH
ACTIVITY
FOR
SKILL M

MULTIPLICATION AND DIVISION WITH 2.

Have the children count by 2's to 20. 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. By doing so, they will be practicing the multiples of two and taking an important step in learning the 2 table.

Go over all the multiplication and division tables of two, either by using the examples of arrays or repeated addition. Write the problems on the board and have the children make drawings and fill in the products and quotients. Have children write in the related sentences.

<u>Problema</u>	<u>Milera</u>	<u>Suma repetida</u>	<u>Repuesta</u>	<u>Oración de división que es relacionada?</u>
1 X 2 =	XX	2	1 X 2 = 2	2 ÷ 2 = 1
2 X 2 =	XX XX	2 + 2 =	2 X 2 = 4	4 ÷ 2 =
3 X 2 =	XX XX XX	2 + 2 + 2 =	3 X 2 = 6	3 ÷ 2 =
4 X 2 =	XX XX XX XX	2 + 2 + 2 + 2 =	4 X 2 = 8	4 ÷ 2 =

ETC. . .

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

FOURTH
ACTIVITY
FOR
SKILL M

Prepare a worksheet with the following type of exercises.

Resuelve: A.

1. $2 \times 2 = \square$

2.
$$\begin{array}{r} 3 \\ \times 2 \\ \hline \end{array}$$

3. $\square \times 2 = 18$

4. $10 \div 2 = \square$

5. $2 \overline{)12}$

B.

$4 \times 2 = \square$

$$\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array}$$

$\square \times 2 = 14$

$8 \div 2 = \square$

$2 \overline{)4}$

C.

$5 \times 2 = \square$

$$\begin{array}{r} 9 \\ \times 2 \\ \hline \end{array}$$

$\square \times 2 = 12$

$2 \div 2 = \square$

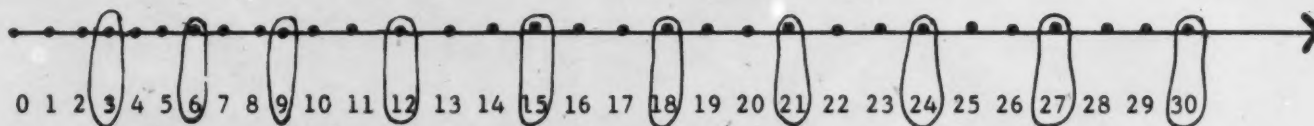
$2 \overline{)18}$

6. En Noruega, hace mucho frío. Cada niño usa 2 guantes. ¿Cuántos guantes llevarán 6 niños?

7. Para escalar montañas en Suiza se usan botas especiales. Hay 18 botas si cada persona necesita 2 botas. ¿Cuántas personas pueden escalar montañas en Suiza?

FIFTH
ACTIVITY
FOR
SKILL M

Draw a number line on the chalkboard from 0 - 30.



With the children, count by three's to thirty. Circle the multiples of 3 as you count.

Then present all the multiplication and division tables of 3. Present them in the same way they were presented in the Fourth Activity, using arrays, repeated addition, etc. . .

<u>Problema</u>	<u>Hilera</u>	<u>Suma repetida</u>	<u>Respuesta</u>	<u>Oración de división que es relacionada</u>
1 X 3	XXX	3	1 X 3 = 3	3 ÷ 3 = 1
2 X 3	XXXX XXXX	3 + 3	2 X 3 = 6	6 ÷ 3 = 2
3 X 3	XXXX XXXX XXXX	3 + 3 + 3	3 X 3 = 9	9 ÷ 3 = 3

ETC . . .

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

FIFTH
ACTIVITY
FOR
SKILL M
(CONTINUED)

Prepare a worksheet with the following types of exercises.

I. Resuelve:

A.

1. $1 \times 3 = \square$

2. $7 \times 3 = \square$

3. $\square \times 3 = 21$

4. $9 \div 3 = \square$

5. Si $8 \times 3 = 24$, entonces $24 \div 3 = \square$

6. Si $6 \times 3 = 18$, entonces $18 \div 3 = \square$

B.

$3 \times 3 = \square$

$8 \times 3 = \square$

$\square \times 3 = 3$

$12 \div 3 = \square$

C.

$5 \times 3 = \square$

$0 \times 3 = \square$

$\square \times 3 = 12$

$15 \div 3 = \square$

II. Escribe una ecuación de multiplicación y división para cada dibujo.

7. $\begin{array}{c} \times \times \times \\ \times \times \times \\ \times \times \times \end{array} \quad \begin{array}{c} \times \\ \div \end{array} \quad \begin{array}{c} \square \\ \square \end{array}$

8.

$\begin{array}{c} \bullet \bullet \bullet \bullet \\ \bullet \bullet \bullet \bullet \\ \bullet \bullet \bullet \bullet \\ \bullet \bullet \bullet \bullet \end{array} \quad \begin{array}{c} \times \\ \div \end{array} \quad \begin{array}{c} \square \\ \square \end{array}$

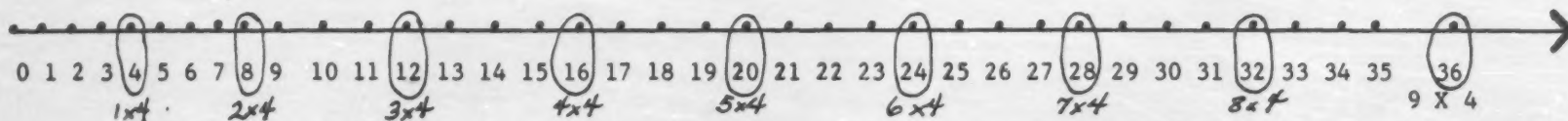
III. Lee y resuelve.

8. Los niños juegan mucho balonpié en Alemania. Si cada equipo tiene 9 bolas. ¿Cuántos bolas tienes 3 equipos?

9. 24 niños quieren jugar balonpié en 3 equipos diferentes; ¿Cuántos niños habian en cada equipo?

SIXTH
ACTIVITY
FOR
SKILL M

Draw a number line on the board from 0-36.



Have the children count by 4's from zero to 36. Circle all the multiples of four as you count. Write the factors of each multiple under each multiple.

Now, count with the children by 1's starting at 0 and ending at 36. But, whenever the group comes to a multiple of four, instead of saying the number, say "BUZZ." (0, 1, 2, 3, BUZZ, 5, 6, 7, BUZZ, 9, 10, 11, BUZZ, etc.)

After doing it with everyone counting together, do it in a circle, with each child saying a number, except if it is a multiple of four, when the child whose turn it is must say "BUZZ."

Later, as an aid in helping children memorize the 4's, eliminate the number line, and play the circle game BUZZ-BUZZ. Children enjoy playing this game.

Present all the multiplication and division tables of 4 as they were presented in the Fourth and Fifth Activity.

<u>Problema</u>	<u>Hilera</u>	<u>Suma repetida</u>	<u>Respuesta</u>	<u>Oración de división que es relacionada</u>
1 X 4	XXXX	4	1 X 4 = 4	4 ÷ 4 = 1
2 X 4	XXXXXX	4 + 4 =	2 X 4 = 8	8 ÷ 4 = 2

ETC.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

SIXTH ACTIVITY FOR SKILL M (CONTINUED)

Prepare a worksheet with the following type of exercises:

I. Escribe una oración de multiplicación y división para cada dibujo.

1. $\begin{array}{cccc} \circ & \circ & \circ & \circ \\ \circ & \circ & \circ & \circ \end{array} \quad \begin{array}{l} \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \square \\ \underline{\hspace{1cm}} \div \underline{\hspace{1cm}} = \square \end{array}$

2. $\begin{array}{cccc} x & x & x & x \\ x & x & x & x \end{array} \quad \begin{array}{l} \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \square \\ \underline{\hspace{1cm}} \div \underline{\hspace{1cm}} = \square \end{array}$

3. $\begin{array}{cccc} \square & \square & \square & \square \\ \square & \square & \square & \square \\ \square & \square & \square & \square \end{array} \quad \begin{array}{l} \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \square \\ \underline{\hspace{1cm}} \div \underline{\hspace{1cm}} = \square \end{array}$

II. Resuelve

A.

4. $3 \times 4 = \square$

5. $\square \times 4 = 36$

6. $12 \div 4 = \square$

B.

5. $\square \times 4 = \square$

$\square \times 4 = 4$

$20 \div 4 = \square$

C.

8. $\square \times 4 = \square$

$\square \times 4 = 28$

$24 \div 4 = \square$

7. En Holanda hay muchos molinos de viento. Si cada molino de viento tiene 4 brazos. ¿Cuántos brazos tendrán 6 molinas de viento?



8. En Escocia, los carros son muy pequeños. Caben 4 personas en cada carro. ¿Cuántos carros se necesitan para 20 personas?

9. 0, 4, ____, 12, ____, ____, 24, ____, 32, ____.

SEVENTH
ACTIVITY
FOR
SKILL M

MULTIPLICATION AND DIVISION WITH 5.

Count from 0 to 50 by 5's. Do it again but this time write the multiples on the board as you do it. Then write the multiplication sentence next to the multiples. After, have the children write the related division sentence.

5 $1 \times 5 = \boxed{5}$ $5 \div 5 = \boxed{1}$

10 $2 \times 5 = \boxed{10}$ $10 \div 5 = \boxed{2}$

15 $3 \times 5 = \boxed{15}$ $15 \div 5 = \boxed{3}$

20 $4 \times 5 = \boxed{20}$ $20 \div 5 = \boxed{4}$

25

30

E T C. . .

35

40

45

50

Play "BUZZ BUZZ" as taught in the Sixth Activity.

SEVENTH ACTIVITY FOR SKILL M (CONTINUED)

Introduce the 5 tables using arrays, repeated addition, etc., as done in previous activities.

Prepare a worksheet with the following types of activities.

I. Completa:

1. 0, ____, 10, 15, ____, ____, ____, 35, ____, ____, ____.

2. $\square \times 5 = 25$

3. $\square \times 5 = 10$

4. $\square \times 5 = 5$

II. Resuelve:

A.

5. $3 \times 5 = \square$

6. $15 \div 5 = \square$

7. $5 \overline{)45}$

B.

6. $6 \times 5 = \square$

30 $\div$ 5 = $\square$

$5 \overline{)20}$

C.

9 $\times$ 5 = $\square$

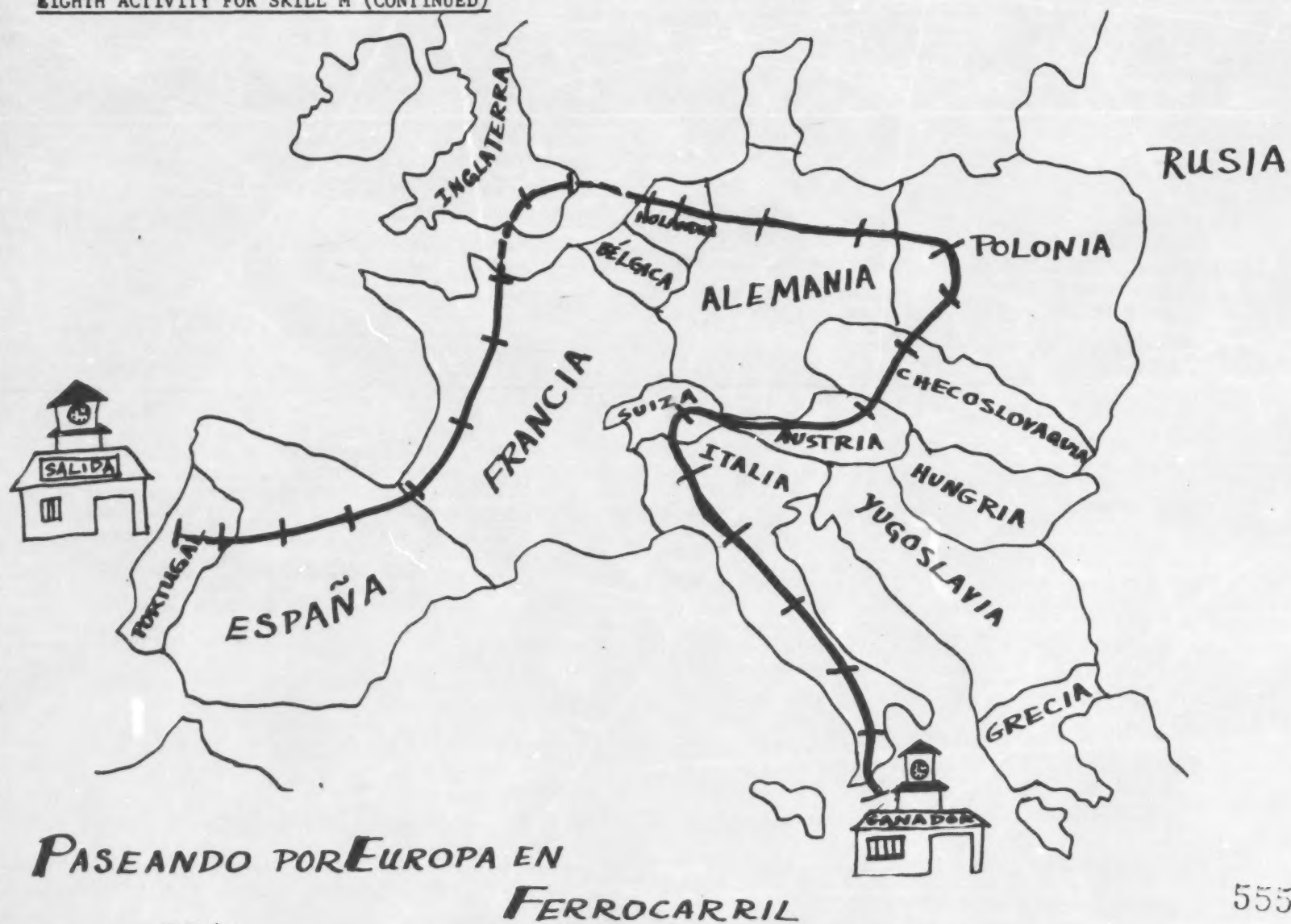
40 $\div$ 5 = $\square$

$5 \overline{)35}$

8. En Francia, el dinero se llama franco. Si una libra de pan vale 5 francos, ¿Cuántos francos se necesitan para comprar 5 libras de pan?

9. Edward, el niño de Inglaterra compró 20 pedazos de chicle. Hay 5 pedazos de chicle en cada paquete. ¿Cuántos paquetes de chicle compió Edward?

EIGHTH ACTIVITY FOR SKILL M (CONTINUED)



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EIGHTH
ACTIVITY
FOR
SKILL M

The Fact Sheet System introduced in Unit II to aid in the memorization of the addition and subtraction facts can readily be adapted to drilling the multiplication and division facts. Example multiplication and division worksheets called "Fact Sheets" and example mastery tests are given in the Unit II explanation.

NOTE: THE FOLLOWING ACTIVITIES ARE FUN, MOTIVATING GAMES TO HELP CHILDREN PRACTICE AND MEMORIZE THE MULTIPLICATION AND DIVISION TABLES. THE IDEAS OF THE GAMES CAN EASILY BE ADAPTED TO MEET THE TEACHER'S NEEDS.

NINTH
ACTIVITY
FOR
SKILL M

Play "Paseando por Europa en ferrocarril."

Use any standard set of multiplication/division flash cards. Two to four players can play. Start in Portugal and follow the railroad path through Europe ending up in Italy. Players go in turn. They take a flash card from the top of the pile and must answer the problem in a reasonable amount of time. If they answer correctly, they move their markers one space on the game board. All cards should be placed at the bottom of the pile. One important rule, before answering the problem, the player must state the country he/she is in. If the player fails to say the country, his/her turn has a breakdown, "el ferrocarril tuvo una avería," and he/she stays where he is at.

Make the game board, a map of Europe, out of oaktag or poster board. The game board example map on the following page can be easily copied on to a piece of oaktag with the use of an opaque projector.

TENTH
ACTIVITY
FOR
SKILL M

Play "Llenando la tabla"; Filling in the Table. Two to four players can play.

Prepare a blank multiplication/division table as it appears below, to the left, out of oaktag. Then, prepare squares ☐ of oaktag that will fit into the blank table of all the products of the tables. (See below to the right.)

To play: all the squares are turned over and put in a random order so the products are facing down. In turn, each player picks up a square and tries to correctly place it on the multiplication/division table. For every square that is correctly placed, the player receives a point. If the player is unable to correctly position the square within ten seconds, he/she must put the square face down back where it was. The player who has the most points, by the time all the squares are positioned, is the winner.

Modification of "Llenando la tabla." The game can be played individually, with the player keeping track of the time it takes to fill the chart. Timed races can be held. Time limits can be set. The possibilities are numerous.

BLANK TABLE

PRODUCT SQUARES

LLENANDO LA TABLA										
	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10					558					

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100

MATHEMATICS CURRICULUM FOR GRADE THREE

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ELEVENTH
ACTIVITY
FOR
SKILL M

Play the game, "Name that Fact," with the multiplication and division facts. (This game is described in Unit II.)

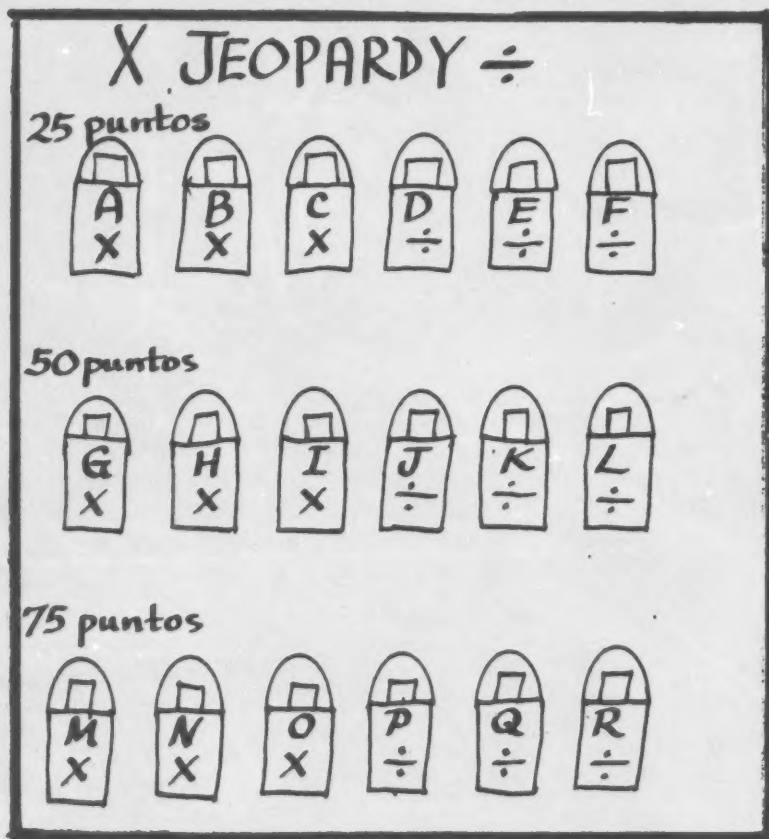
TWELFTH
ACTIVITY
FOR
SKILL M

Play "Go To The Front Buzz Buzz." Play "Buzz Buzz" in the same way as it is described in the Sixth Activity of this unit, with the following exception. One person is the leader. An object of the game is to get to be leader. The leader selects the multiple for each game (multiples of 2, 3, 4, 5, 6, etc.) and he/she starts the game. Each player in the circle is sitting in a chair that has an ordinal number. The leader is in the first chair. During the game, if a child makes a mistake (i.e., forgets to say "Buzz" or say a number out of sequence or loses track of the game) he must relinquish his/her seat position and go to the "end of the line" seat. Then, everyone else moves up one seat closer to the first chair.

THIRTEENTH
ACTIVITY
FOR
SKILL M

Play Multiplication/Division Facts Jeopardy (Small Group or Large Group Game).

Prepare a Jeopardy Board with a large piece of poster board and 4" x 8" envelopes. Prepare X and $\div$ flash cards or use any commercially prepared flash cards. Divide the flash cards into categories from easy to hard. Then, place at least five flash cards of a particular difficulty in each envelope. At least two teams should play. The game is played this way:



A team member tells the moderator of the game the letter of the facts he/she is going to answer. Then, the moderator takes the flash cards out of that envelope and flashes the cards to the player. In order to earn 25, 50 or 75 points, depending on which letter he/she selected, the player must answer correctly all the facts from that envelope in 30 seconds. If the player misses, or does not finish in time, his/her team wins no points.

The game can be played to a certain number of points or for a designated time period.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT IV: EUROPE

FOURTEENTH
ACTIVITY
FOR
SKILL M

Play the game, "Repara el dique." (Repair the Dike.)

The first time the game is played, discuss that Holland has dikes built all along the ocean shore to prevent the ocean from flooding Holland. Discuss how Holland is a very flat land and why dikes are needed to protect the land.

In this game, we are going to pretend a multiplication table is a Holland dike. The empty spaces in the table are holes in the dike letting water in. However, if the product of a multiplication fact is written in the blank space (box), the hole is blocked.

A blank multiplication table similar to the drawing  is drawn on the chalkboard. Two evenly matched teams are formed and they line up facing the chalkboard. Each team is given a different colored piece of chalk. The game starts when the teacher says, "Reparen el dique." One player from each team goes to the board and enters any product he/she chooses in its proper place on the table. The player then passes the chalk to the next player and goes to the end of the line. This is repeated until all the spaces (dike holes) are filled. The teacher then corrects the products using white chalk, circling the correct answers and crossing out the incorrect ones. Then, the number correct are counted by color, and the winner is determined.

X	8	3	0	1	5	7	6	9	2
6									12
3	24				15				
2									
5			0				20		
1									
4		12							
7									

FIFTEENTH
ACTIVITY
FOR
SKILL M

Play the game, "Congelandose en la cima del Matterhorn." (Freezing On Top Of The Matterhorn.)

The first time the game is played, explain that Switzerland is a land of high, cold, snowy mountains. The Matterhorn is a very famous high cold mountain that you would never want to get stuck on!

Five to ten children can play. Use a set of flash cards for division or multiplication facts. The students should form a semi-circle facing the leader of the game holding the flash cards. The leader shows one card and calls out a player's name. If the player misses, he/she must go sit and "freeze" on top of the Matterhorn. (A designated spot must be located in the room for the Matterhorn.) To get off the Matterhorn, he/she must compete with another student whose name is called: the player to give the correct answer first wins and the loser stays or goes to the Matterhorn. If students take more than 15 seconds to answer, they go to the Matterhorn. The game continues with competitive matches between students.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT V: ASIA

- SKILL A: Regrouping once in addition (2 to 4 digits).
- SKILL B: Regrouping once in subtraction (2 to 3 digits).
- SKILL C: Identifying value of United State coins and combining coins, computing their sums.
- SKILL D: Making change to \$1.00.
- SKILL E: Writing money using dollar sign (\$) and decimal notation (.) to a total sum of \$10.00.
- SKILL F: Applying money skills in a Japanese-American Market Day.

SKILL A: Regrouping once in addition
(2 to 4 digits).

VOCABULARY:

addition	"suma"
re-group	"reagrupar"
carry	"llevar"
ones	"unidades"
tens	"decenas"
hundreds	"centenas"
thousands	"millares"

**FIRST
ACTIVITY
FOR
SKILL A**

Review and practice re-grouping ones to tens, tens to hundreds and hundreds to thousands. It is strongly suggested that children visualize and practice this re-grouping process with concrete objects before doing work with symbolic representations.

REGROUPING ONES TO TENS.

1. Present a group of 24 Ten one's blocks. Have children group 10 ones together to form tens. Exchange a ten's block strip for each group of ten ones. Once all tens have been formed, write the numeral for the blocks given. Include the left over ones in the numeral. For example: This numeral would be 24. That is 2 tens, 4 ones



ten's block strip

one's block

REPEAT WITH OTHER GROUPS OF BLOCKS.

570

571

FIRST ACTIVITY FOR SKILL A (CONTINUED)

2. Put the following type of exercises on the chalkboard and prepare an accompanying ditto worksheet. Students will be showing, on paper, the re-grouping of ones as tens. Review with children that | stands for tens and • stands for ones. This was first learned in Unit III.

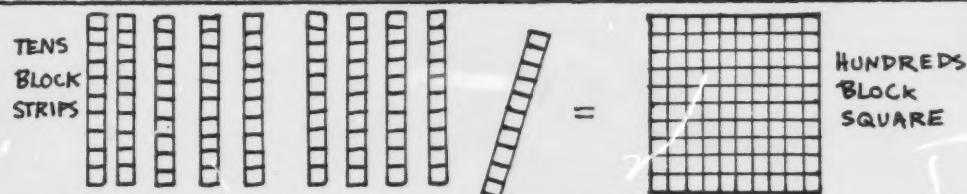
$$\begin{array}{ccccccc} \bullet & \bullet & \bullet & \bullet & \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet & \bullet & \bullet & \bullet & \bullet \end{array} = \begin{array}{c} || \\ \bullet \end{array} = \underline{23}$$

$$\underline{23} \text{ unidades} = \underline{2} \text{ decenas } \underline{3} \text{ unidades} = \underline{23}$$

- Have children count the ones and then group 10 ones together to form tens. "Reagrupa las unidades para formar decenas, tachando diez unidades para cada decena."
- Have children symbolize (draw) the 23 ones as 2 tens (||) and 3 ones (•). Fill in the numerals.
- Have children complete the exercise by writing in 23. They should understand that || • symbolically stands for the numeral 23.

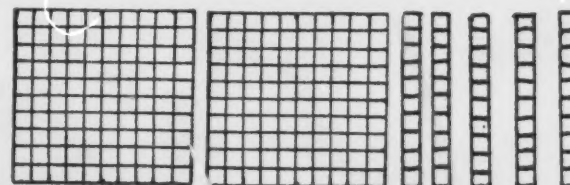
REPEAT WITH OTHER EXAMPLES.

FIRST ACTIVITY FOR SKILL A (CONTINUED)



REGROUPING TENS TO HUNDREDS.

- Present a group of 10 tens block strips. Have children group 10 tens together to form hundreds. Exchange a hundreds square for each group of 10 tens. Once all hundreds have been formed, write the numeral for the blocks given. Include the left over tens in the numeral. For examples: This numeral would be 250. That is 2 hundreds, 5 tens, 0 ones



REPEAT WITH OTHER GROUPS OF TENS STRIPS.

- Repeat the following type of exercises, but this time re-grouping tens as hundreds. Review with children that $\square$ stands for hundreds.

25 decenas = 2 centenas 5 decenas 0 unidades = 250

- Have children count the tens and the group 10 tens to form hundreds. "Reagrupa las decenas para formar centenas, tachando diez decenas para cada centena."
- Have children symbolize (draw) 25 tens as 2 hundreds ($\square \square$) and 5 tens (|||||). Fill in the numerals. Notice there are no ones, so a zero must be written to show no ones.
- Have children complete the exercise by writing in 250. They should understand that $\square \square |||||$ symbolically stands for the numeral 250.

REPEAT WITH OTHER EXAMPLES.

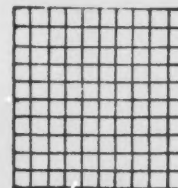
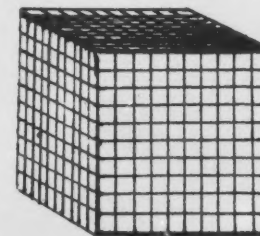
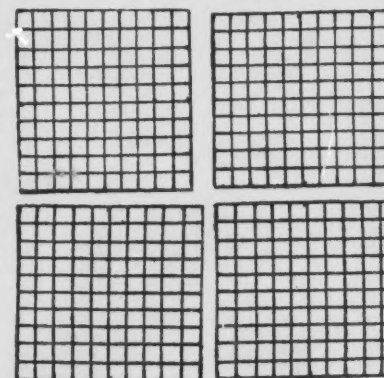
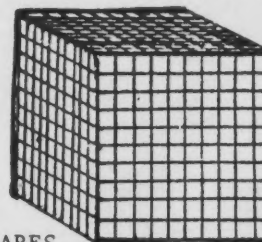
FIRST ACTIVITY FOR SKILL A (CONTINUED)REGROUPING HUNDREDS TO THOUSANDS.

1. Present a group of Ten hundreds squares.
Have the children group 10 hundreds together
to form thousands. Exchange a thousands cube
for each group of ten
hundreds. Once all the thousands have been
formed, write the numeral for the blocks
given. Include the left over hundreds in the numeral.

For example: This numeral would
be 1400. That is 1 thousands,
4 hundreds,
0 tens,
0 ones

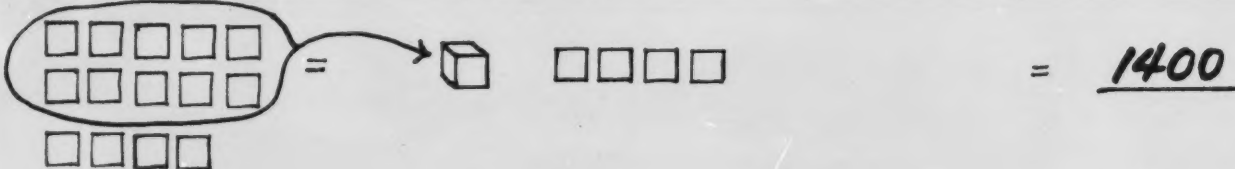
Review what each numeral means.

REPEAT WITH OTHER GROUPS HUNDREDS SQUARES.

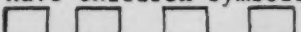
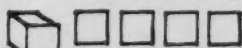
HUNDREDS
SQUARETHOUSANDS
CUBE

FIRST ACTIVITY FOR SKILL A (CONTINUED)

2. Repeat the following type of exercises, but this time re-grouping hundreds as thousands. Review that  stands for thousands.



14 centenas = 1 millares 4 centenas 0 decenas 0 unidades = 1400

- a. Have the children count the hundreds and group 10 hundreds to form a thousand. "Reagrupa las centenas para forma millares, tachando diez centenas para cada millar."
- b. Have children symbolize (draw) 14 hundreds as 1 thousand  and 4 hundreds . Fill in the numerals. Notice there are 0 tens and 0 ones.
- c. Have the children complete the exercise by writing in 1400. They should understand that  symbolically stands for the numeral, 1400.

REPEAT WITH OTHER EXAMPLES.

SECOND
ACTIVITY
FOR
SKILL A

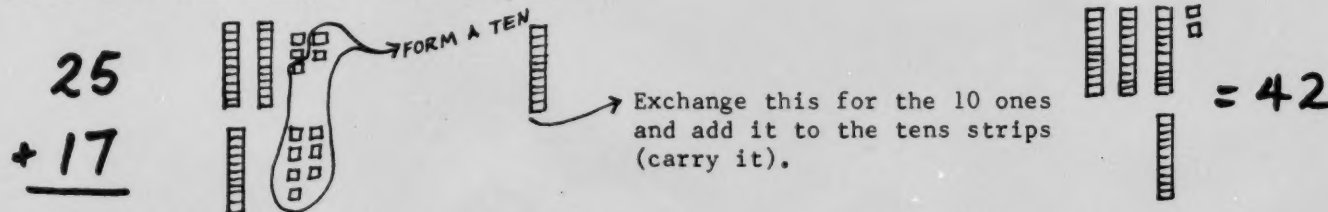
REGROUPING ONES TO TENS IN ADDITION PROBLEMS WITH NUMERALS OF 2 OR MORE DIGITS.

1. Concretely present 25 with 25 being represented with 2 tens strips

+17

and 5 ones blocks

and 17 being represented with 1 tens strip and 7 ones blocks. With the students participating in a "hands on manner," join the ones together (5 + 7), exchanging 1 ten strip for 10 ones of the 12 total ones. Add that tens strip to the other tens strip. Add the total number tens with the left over ones to solve the problem.



REPEAT THIS "CONCRETE" ACTIVITY AS MANY TIMES AS IS NECESSARY.

2. Put the following type of written exercise on the chalkboard with an accompanying ditto worksheet. In this exercise, the children are going to symbolically show re-grouping ones to tens in an addition problem. Children will be using all the symbols they have used previously. Children will solve the problem within the symbolic drawing first, and then transfer that experience and learning to a regular numeral problem.

Children will also learn what "carrying" (llevando uno) is. Through the drawing they will understand why carrying is done.

SECOND ACTIVITY FOR SKILL A

1. First, have children count the ones (•) in the drawing. When 10 ones form a ten, draw a circle around those 10 ones and cross out the ones.
2. Second, exchange the 10 ones for a ten and draw in another ten (I). This is the step of carrying. Refer back to this when doing the Regular Numeral Problem.
3. Third, count up the remaining ones (3) and count the tens (4). Write numerals in the appropriate boxes in the drawing.
4. Make the transfer from the Symbolic Representation to the Regular Numeral Problem. Add the ones first. Discuss what 13 ones equals, when regrouped. One ten and 3 ones. Discuss carrying the re-grouped ten and showing it (I) in the tens column. Add the tens.

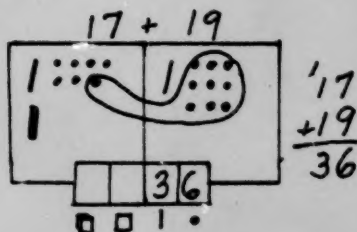
Make sure children understand what they are doing when re-grouping (carrying). Children will later encounter difficulty if they do problems involving re-grouping by rote or in a mechanical way without understanding what they are doing.

REPEAT THE PROCESS ON THE CHALKBOARD WITH MANY EXAMPLES. THEN, PREPARE ANOTHER DITTO WITH THE FOLLOWING TYPES OF PROBLEMS.

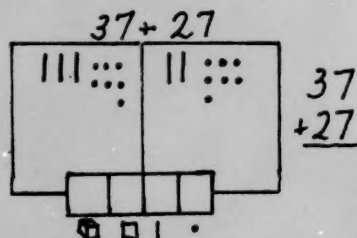
Suma:

1)

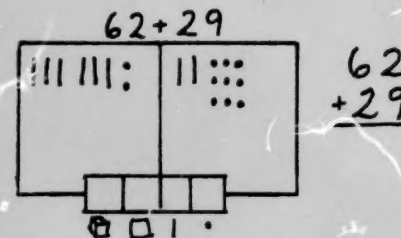
Ejemplo:



2)



3)



4) $\begin{array}{r} 35 \\ +25 \\ \hline \end{array}$

5) $\begin{array}{r} 46 \\ +28 \\ \hline \end{array}$

6) $\begin{array}{r} 57 \\ +47 \\ \hline \end{array}$

7) $\begin{array}{r} 82 \\ +19 \\ \hline \end{array}$

8) $\begin{array}{r} 48 \\ +37 \\ \hline \end{array}$

9) $\begin{array}{r} 52 \\ +38 \\ \hline \end{array}$

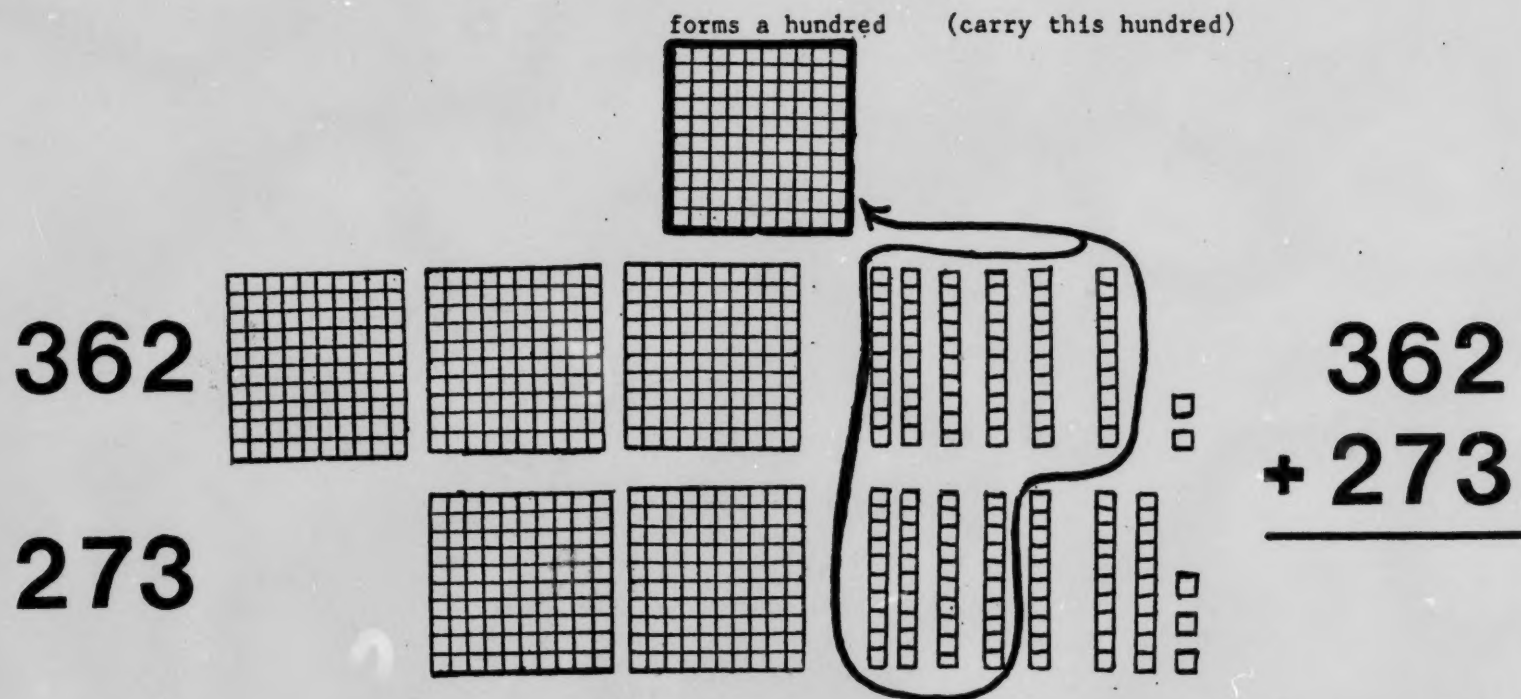
MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT V: ASIA

THIRD
ACTIVITY
FOR
SKILL A

REGROUPING TENS TO HUNDREDS IN ADDITION PROBLEMS WITH NUMERAL OF 2 OR MORE DIGITS.

1. Concretely present 362 with Base Ten hundreds blocks, tens strips and ones blocks.
+273



With student participation, add the ones together ($2 + 3$), add the tens strips together ($6 + 7$) exchanging 1 hundred block for 10 ten strips of the 13 total tens. Add the hundreds block to the other hundreds blocks. Add the total number of hundreds with the left over tens to solve the problem.

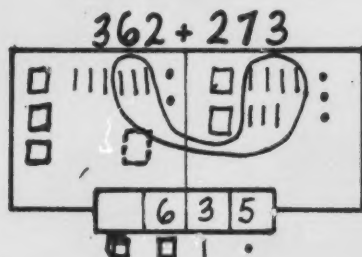
REPEAT THIS CONCRETE ACTIVITY AS MANY TIMES AS NECESSARY.

THIRD ACTIVITY FOR SKILL A (CONTINUED)

2. Put the following type of written exercise on the chalkboard with an accompanying ditto worksheet. In this exercise, the children will symbolically show re-grouping tens to hundreds in an addition problem. (Note: The sum can be solved just by using the symbols, if desired.)

It is suggested that the symbolic representation be solved first, followed by a natural transfer to the Regular Numeral Problem.

A. SYMBOLIC REPRESENTATION



B. REGULAR NUMERAL PROBLEM

$$\begin{array}{r} 362 \\ + 273 \\ \hline 635 \end{array}$$

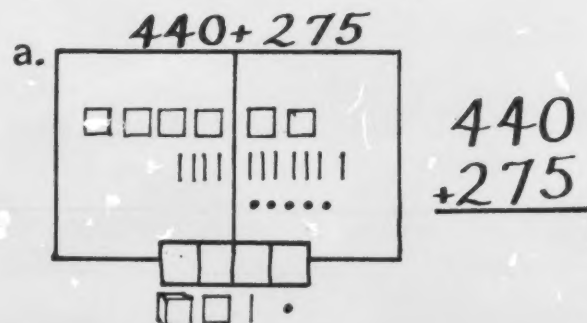
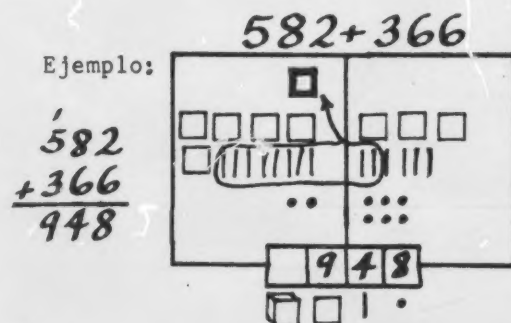
1. First, have children count the ones (•) and write the number in the box.
2. Second, count the tens. When 10 tens are counted, circle the 10 tens and cross out those tens.
3. Third, exchange the 10 tens for a hundred and draw in another hundred (■). This is the regrouping or carrying step. Explain.
4. Count the remaining tens and then count the hundreds, writing in the numerals in the boxes.
5. Make the transfer from the Symbolic Representation to the Regular Numeral Problem. Emphasize the tens being regrouped as a hundred and being shown as carrying. Emphasize that the "1" placed above the thousands column represents the carrying of ten hundreds into one thousands.

REPEAT WITH OTHER EXAMPLES.

THIRD ACTIVITY FOR SKILL A (CONTINUED)

Prepare a written exercise with the following type of exercises.

Suma:



b. $\begin{array}{r} 632 \\ + 292 \\ \hline \end{array}$

c. $\begin{array}{r} 551 \\ + 382 \\ \hline \end{array}$

d. $\begin{array}{r} 198 \\ + 391 \\ \hline \end{array}$

e. $\begin{array}{r} 284 \\ + 382 \\ \hline \end{array}$

f. $\begin{array}{r} 325 \\ + 282 \\ \hline \end{array}$

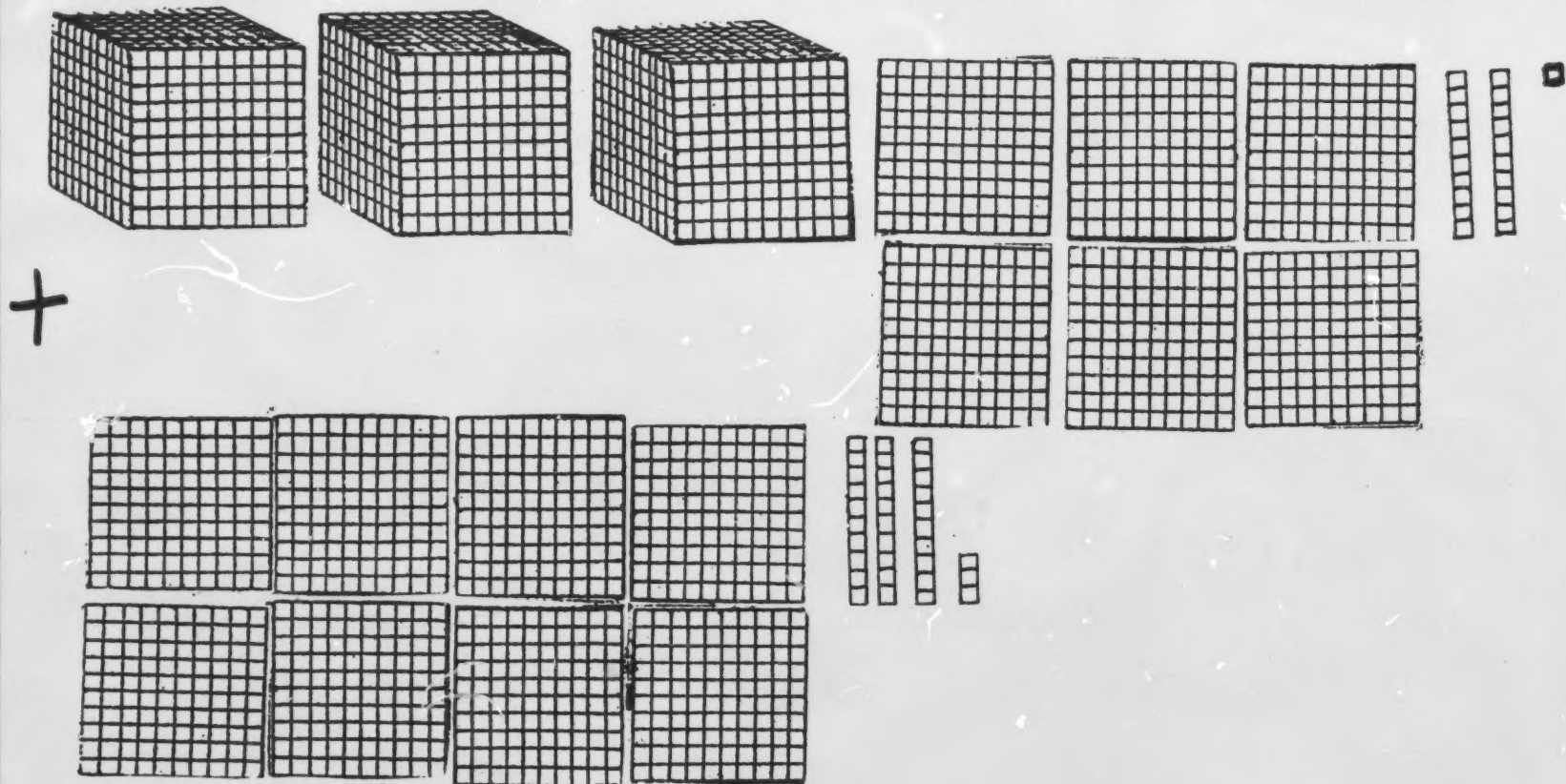
588

589

FOURTH ACTIVITY FOR SKILL A

REGROUPING HUNDREDS TO THOUSANDS IN ADDITION PROBLEMS WITH NUMERALS OF 3 OR MORE DIGITS.

1. Concretely present $3,621 + 823$ with Base Ten thousands cubes, hundreds squares, tens strips and ones blocks.



With student participation, add the ones ($1+3$). Add the tens ($2+3$). Add the hundreds ($6+8$), exchanging the 1 thousand cube for 10 hundreds squares of the total 14 hundreds. Add the thousand cube to the other thousands cubes. Add the total number of hundreds left over and then add the thousands to solve the problem.

REPEAT WITH OTHER EXAMPLES.

MATHEMATICS CURRICULUM FOR GRADE THREE

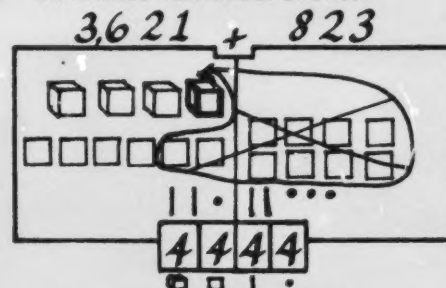
UNIT V: ASIA

FOURTH ACTIVITY FOR SKILL A (CONTINUED)

2. Put the following type of written exercise on the chalkboard with an accompanying ditto worksheet. In this exercise, the students will symbolically show re-grouping hundreds to thousands in an addition problem.

This exercise is just like the exercises done in Activities 2. and 3. of this Skill.

A. SYMBOLIC REPRESENTATION



B. REGULAR NUMERAL PROBLEM

$$\begin{array}{r} 3,621 \\ + 823 \\ \hline 4,444 \end{array}$$

1. Have children count the ones (•) and write the total in the box.
2. Count the tens and write the total in the box.
3. Count the hundreds, when 10 hundreds are counted, circle the 10 hundreds and cross out those hundreds.
4. Exchange the 10 hundreds for a thousand and draw in a thousand cube (■). This is the re-grouping or carrying step. Explain.
5. Count the remaining hundreds and the total number of thousands. Write the totals in the boxes.
6. Make the transfer from the Symbolic Representation to the Regular Numeral Problem. Indicate how the one above the three represents the carrying in the Numeral Problem.

592

REPEAT THE PROCESS WITH OTHER EXAMPLES.

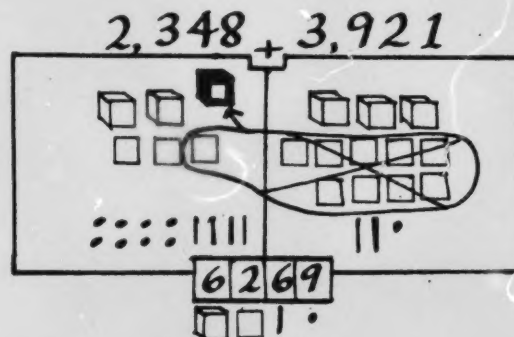
593

FOURTH ACTIVITY FOR SKILL A (CONTINUED)

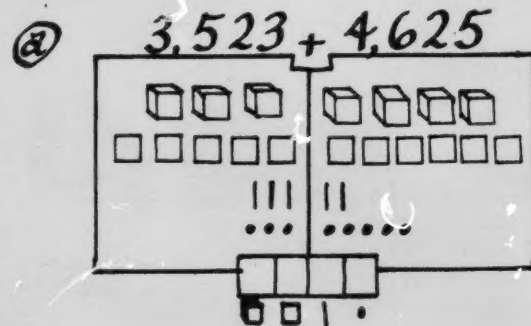
Prepare a written exercise with the following type of exercises.

Suma:

Ejemplo:



$$\begin{array}{r} 2,348 \\ + 3,921 \\ \hline 6,269 \end{array}$$



$$\begin{array}{r} 3,523 \\ + 4,625 \\ \hline 8,148 \end{array}$$

⑥ $\begin{array}{r} 4,835 \\ + 2,932 \\ \hline \end{array}$

③ $\begin{array}{r} 5,632 \\ + 3,620 \\ \hline \end{array}$

④ $\begin{array}{r} 3,403 \\ + 1,856 \\ \hline \end{array}$

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT V: ASIA

FIFTH
ACTIVITY
FOR
SKILL A

The following is a review exercise worksheet on re-grouping once in addition. Some example story problems are also given.

I. Dibuja el problema en el cuadro y después suma.

a. $35 + 49$

b. $356 + 381$

c. $1842 + 3423$

II. Suma:

d. $\begin{array}{r} 38 \\ +29 \\ \hline \end{array}$

e. $\begin{array}{r} 56 \\ +36 \\ \hline \end{array}$

f. $\begin{array}{r} 482 \\ +345 \\ \hline \end{array}$

g. $\begin{array}{r} 563 \\ +291 \\ \hline \end{array}$

h. $\begin{array}{r} 4825 \\ +3514 \\ \hline \end{array}$

i. $\begin{array}{r} 5428 \\ +3610 \\ \hline \end{array}$

III. Resuelve:

10. Sadaharu Oh, el gran jonronero japonés bateó 47 cuadrangulares en un año y 45 el otro año. ¿Cuántos cuadrangulares bateó en ambos años?
11. Kammu viajó 49 millas en bicicleta el primer día en su viaje a la montaña Fugi. El segundo día, viajó 43 millas. ¿Cuántas millas viajó por todo?
12. En Indonesia como en Puerto Rico, las peleas de gallos son muy populares. Un sábado asistieron 363 fanáticos a la gallera. El siguiente sábado asistieron 486 fanáticos. ¿Cuántos fanáticos asistieron a las peleas en total?
13. En la escuela de Mei Ling, hay 135 niños y 162 niñas. ¿Cuántos estudiantes hay por todo?
14. Kwan Ming vive con su familia en una finca colectiva en China. Cosecharon 1,742 bolsas de arroz y 1,300 bolsas de azúcar. ¿Cuántas bolsas cosecharon por todo?
15. Took vive en Bangkok, Tailandia. Hay 5,900 habitantes en su barrio y 2,400 habitantes en el barrio de su amigo. ¿Cuántos habitantes viven en ambos barrios?

SKILL B: Regrouping once in subtraction (2 and 3 digits).

VOCABULARY:

subtraction
regroup
borrow
ones
tens
hundreds
thousands

"resta"
"reagrupar"
"coger prestado"
"unidades"
"decenas"
"centenas"
"millares"

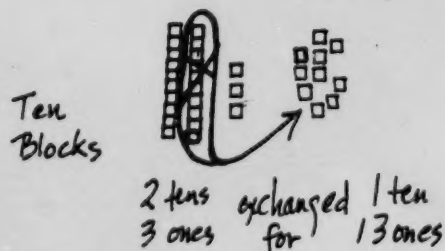
NOTE: In this skill, students will practice the regrouping needed in subtraction. Again it is strongly suggested that the steps in regrouping (borrowing) be shown with concrete objects (Base Ten Blocks), then through symbols, and finally with just the numbers. This process will help child understand what they are doing (and why) when they regroup (carry) in subtraction.

**FIRST
ACTIVITY
FOR
SKILL B**

REGROUPING A TEN TO ONES.

1. Using Ten Blocks, concretely present 23 as 2 tens and 3 ones. Then count the tens and ones. (Give a ten to the ones.) Exchange a ten for 10 ones. (This is borrowing.) Ask how many tens and ones there are after the regrouping. There are now 1 ten 13 ones, or $\overset{1}{\cancel{2}}\overset{13}{3}$. Explain.

REPEAT WITH OTHER EXAMPLES.

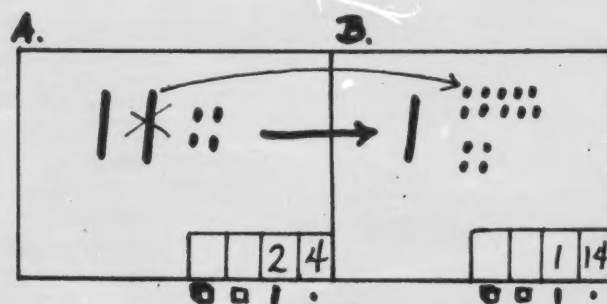


599

FIRST ACTIVITY FOR SKILL B (CONTINUED)

2. Put the following type of exercises on the chalkboard and prepare an accompanying ditto worksheet. The same symbols used in previous lessons ($\square, \square, 1, \cdot$) will be used throughout the exercises in this skill.

In this exercise, the children will symbolically show regrouping tens to ones.



$\begin{array}{r} 1 \text{ } 14 \\ 24 \end{array}$

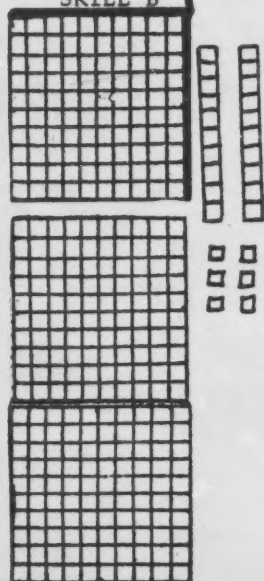
Instruct children to regroup this number (24) changing a ten to 10 ones. Children should cross out a ten and draw 10 ones in the B box. Then the remaining symbols from Box A should be written in Box B. Then children should count the ones and tens and write the number of each in the appropriate boxes.

REPEAT WITH OTHER EXAMPLES.

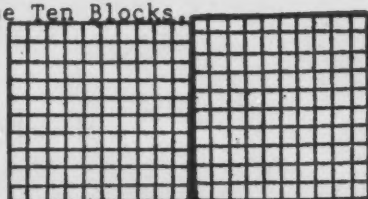
SECOND
ACTIVITY
FOR
SKILL B

REGROUPING A HUNDRED TO TENS.

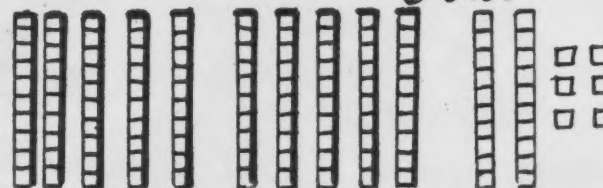
1. Present 326 with Base Ten Blocks.



3 hundreds
2 tens
6 ones



2 hundreds
12 tens
6 ones



Exchange a hundred for 10 tens. (Give a hundred to the tens.) This is the borrowing stage. Now count the hundreds, tens and ones. 2 hundreds 12 tens 6 ones or Explain. Explain to children that this is what is done when regrouping (or borrowing) in subtraction.

2. Practice the following type of exercise on the chalkboard and/or on a ditto worksheet.

In Box A, instruct children to regroup the number 326, regrouping a hundred to tens. Children should cross out a hundred and draw 10 tens in Box B along with the remaining Box A symbols. After the regrouping, count the 0, 1 and 6 and write the number of each in the boxes.

A.	B.																
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3	2	6															
2	12	6															

$\overset{2}{3}\overset{12}{2}6$

Explain the relationship.

REPEAT WITH OTHER EXAMPLES.

602

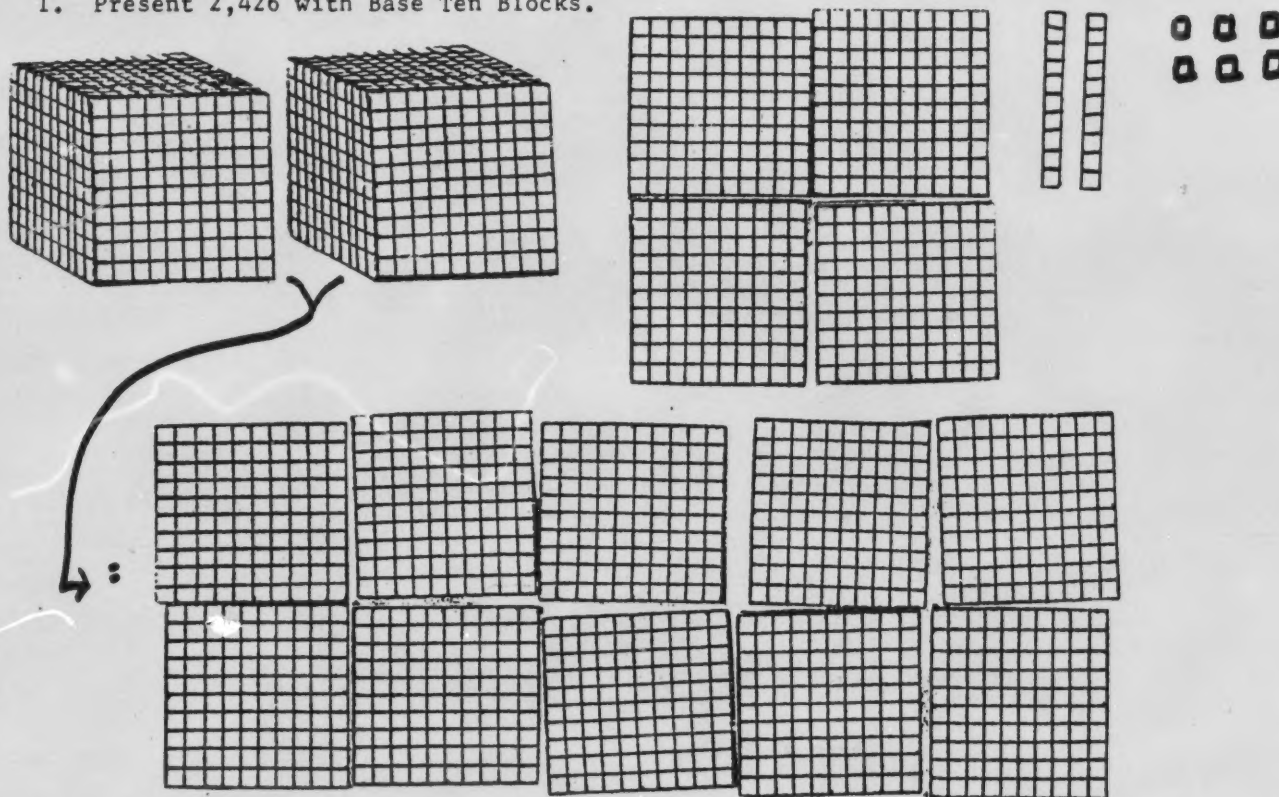
603

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT V: ASIA

THIRD ACTIVITY FOR SKILL BREGROUPING A THOUSAND TO HUNDREDS.

1. Present 2,426 with Base Ten Blocks.



Exchange a thousand for 10 hundreds. (Give a thousand to the hundreds.) This is the borrowing step. Now count the thousands, hundreds, tens and ones.

1 thousand, 14 hundreds, 2 tens, 6 ones or 2,426. Explain.

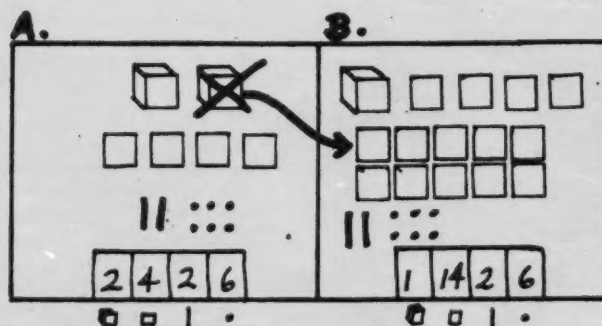
Explain that this is what is done when regrouping (or borrowing) in subtraction.

REPEAT WITH OTHER EXAMPLES.

THIRD ACTIVITY FOR SKILL B (CONTINUED)

2. Practice exercises, symbolically showing regrouping thousands to hundreds.

In Box A, instruct children to regroup the number 2,426, regrouping a thousand to hundreds. Children should cross out a thousand and draw 10 hundreds in Box B along with the remaining Box A symbols. After renaming or regrouping 2,426, count the $\square$, $\square$, $|$, and $\cdot$. Write the numbers of each in the boxes.



$\begin{array}{r} 1 \quad 14 \\ 2426 \end{array}$

Explain the relationship.

REPEAT WITH OTHER EXAMPLES.

Note: If children understand this process, they should not have great difficulty regrouping in subtraction.

NOTE: In the next three activities, a procedure will be presented to teach regrouping in an actual subtraction problem. Again, the following sequence is suggested:

Concrete experience $\longrightarrow$ symbolization $\longrightarrow$ actual problem with numerals only.

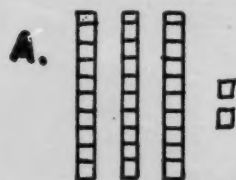
**FOURTH
ACTIVITY
FOR
SKILL B**

SUBTRACTION: REGROUPING TENS TO ONES IN PROBLEMS WITH 2 DIGITS.

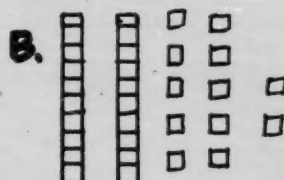
1. Write the problem 32 on the chalkboard.

$$\begin{array}{r} 32 \\ -18 \\ \hline \end{array}$$

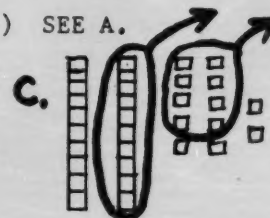
Show 32 with Base Ten Blocks. (3 tens, 2 ones) SEE A.



$\sim$ 3 tens 2 ones



$\sim$ 2 tens 12 ones



$\sim$ subtracting 1 ten 8 ones

$$\begin{array}{r} 32 \\ -18 \\ \hline \end{array}$$

Ask the children if it is possible to subtract 8 ones from 2 ones. Discuss that it is not possible.

SEE B. Explain that 32 can be regrouped so that it can have 12 ones by regrouping a ten as ones. Exchange a tens strip for 10 ones blocks. Show the exchange and discuss the new regrouping. Write the new regrouping as 1 ten 12 ones, or $\begin{array}{r} 32 \\ -18 \\ \hline \end{array}$.

You can also discuss the aforementioned step as borrowing (coyiendo prestado). Say that since you cannot subtract 8 ones from 2 ones, you are going to borrow a ten and give it to the ones. The borrowing is the regrouping. Solve $32-18 =$ by subtracting 8 ones from 12 ones and by subtracting 1 ten from 2 tens. SEE C.

REPEAT WITH OTHER EXAMPLES.

FOURTH ACTIVITY FOR SKILL B (CONTINUED)

2. Put the following type of exercises on the chalkboard with an accompanying ditto worksheet.

Quítale 28 (subtract 28 from 73).

	Reagrupa y resta	¿Cuanto queda?
A. 7 3	B. 6 13	C.

Note: The same process will be repeated when regrouping hundreds to tens and when regrouping thousands to hundreds.

$$\begin{array}{r}
 73 \\
 -28 \\
 \hline
 \end{array}
 \qquad
 \begin{array}{r}
 6 \overset{13}{} \\
 \cancel{7} \cancel{3} \\
 -28 \\
 \hline
 45
 \end{array}
 \qquad
 \begin{array}{r}
 6 \overset{13}{} \\
 \cancel{7} \cancel{3} \\
 -28 \\
 \hline
 45
 \end{array}$$

In A, show 73 in symbols. The numerals are written in the boxes.

In B, a ten is regrouped (or borrowed) from And drawn as 10 ones in B. The numerals are written in the boxes. In B, 28 is subtracted from the regrouped symbols. Eight ones are subtracted from 13 ones, and 2 tens are subtracted from 6 tens.

In C, the difference is drawn and written in the appropriate boxes.

In D, the numerical problem is shown at each step. Make sure children understand the regrouping process and showing it as .

REPEAT WITH OTHER EXAMPLES.

FOURTH ACTIVITY FOR SKILL B (CONTINUED)

Prepare a practice exercise in which problems are given regrouping tens to ones.
Example problems are given below.

I. Dibuja los símbolos en los cuadros y resta.

Ejemplo:

Quítale 19 a:

	Regrupa y resta	¿Cuánto queda?
4 2	3 12	2 3

$$\begin{array}{r} 3 \text{ } 12 \\ 42 \\ -19 \\ \hline 23 \end{array}$$

1. Quítale 29 a:

	Regrupa y resta	¿Cuánto queda?
5 1		

$$\begin{array}{r} 51 \\ -29 \\ \hline \end{array}$$

2. Quítale 37 a:

	Regrupa y resta	¿Cuánto queda?
8 6		

$$\begin{array}{r} 86 \\ -37 \\ \hline \end{array}$$

II. Resta:

$$\begin{array}{r} 81 \\ -36 \\ \hline \end{array}$$

$$\begin{array}{r} 50 \\ -25 \\ \hline \end{array}$$

$$\begin{array}{r} 63 \\ -19 \\ \hline \end{array}$$

$$\begin{array}{r} 43 \\ -25 \\ \hline \end{array}$$

$$\begin{array}{r} 75 \\ -28 \\ \hline \end{array}$$

$$\begin{array}{r} 53 \\ -38 \\ \hline \end{array}$$

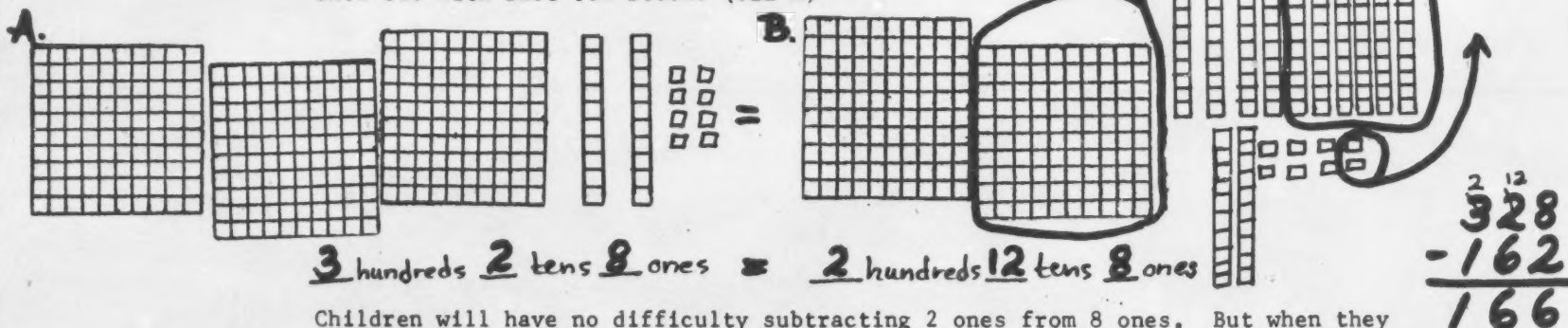
FIFTH
ACTIVITY
FOR
SKILL B

SUBTRACTION: REGROUPING HUNDREDS TO TENS IN PROBLEMS OF 3 OR LESS DIGITS.

1. Write the problem, 328, on the chalkboard.

$$\begin{array}{r} 328 \\ -162 \\ \hline \end{array}$$

Show 328 with Base Ten Blocks (SEE A)



Children will have no difficulty subtracting 2 ones from 8 ones. But when they attempt to subtract 6 tens from 2 tens, this is not possible. So, have them regroup 328. Regrouping a hundred as 10 tens, (or tell children they can borrow a hundred and give it to the tens). (SEE B)

After the regrouping, subtract 162 from the blocks, subtracting 2 ones from 8 ones, 6 tens from 12 tens and 1 hundred from 2 hundreds. (SEE C) What is left is the difference.

As the blocks are being manipulated, do the numerical problem at the same time, explaining the numerical notation $\begin{array}{r} 328 \\ -162 \\ \hline 166 \end{array}$.

FIFTH ACTIVITY FOR SKILL B (CONTINUED)

2. Have children practice the following type of exercises:

Quítale 162 a:

A.

	B. Regrupa y resta	C. ¿Cuánto queda?
328 □ .	2128 □ .	166 □ .

D.

328	328	328
-162	-162	-162
166		166

A shows 328 in symbols.

B shows a hundred being regrouped as 10 tens. B shows the regrouped numerals in the boxes. B shows 162 being subtracted from the regrouped 328. (2 hundreds, 12 tens, 8 ones).

C shows the difference after subtraction.

D shows the numerical process in relation to the symbolic presentation.

ALLOW CHILDREN MANY OPPORTUNITIES TO DO THIS TYPE OF EXERCISE.

FIFTH ACTIVITY FOR SKILL B (CONTINUED)

Example practice worksheet in which hundreds are regrouped to tens in subtraction problems.

I. Dibuja los símbolos en los cuadros y resta.

Ejemplo:

Quítale 382 a:

	Regrupa y resta	¿Cuánto queda?

$$\begin{array}{r} 6 \text{ } 15 \\ 756 \\ - 382 \\ \hline 374 \end{array}$$

1.

Quítale 193 a:

	Regrupa y resta	¿Cuánto queda?

$$\begin{array}{r} 415 \\ - 193 \\ \hline \end{array}$$

2.

Quítale 550 a:

	Regrupa y resta	¿Cuánto queda?

$$\begin{array}{r} 726 \\ - 550 \\ \hline \end{array}$$

II. Resta:

3.
$$\begin{array}{r} 431 \\ - 180 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 529 \\ - 265 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 928 \\ - 391 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 715 \\ - 324 \\ \hline \end{array}$$

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT V: ASIA

SIXTH
ACTIVITY
FOR
SKILL BSUBTRACTION: REGROUPING THOUSANDS TO HUNDREDS IN PROBLEMS OF 4 OR LESS DIGITS.

1. Follow the exact same procedure in concretely presenting $4,362$ with Base Ten Blocks. $-2,621$

Show how a thousand is regrouped to 10 hundreds. Explain the numerical notation that shows regrouping or borrowing has taken place.

$$\begin{array}{r} 3 \text{ } 13 \\ 4362 \end{array}$$

PRESENT AS MANY EXAMPLES AS NECESSARY.

2. Have children practice the following type of exercises:

A. *Quítale 1843 a:* B.

C.

	Regrupa y resta	¿Cuánto queda?
4 4 8 5	3 14 8 5	2 6 4 2
□ □ .	□ □ .	□ □ .

D.

$$\begin{array}{r} 4485 \\ -1843 \\ \hline \end{array}$$

$$\begin{array}{r} 3485 \\ -1843 \\ \hline \end{array}$$

$$\begin{array}{r} 3485 \\ -1843 \\ \hline 2642 \end{array}$$

A shows 4,485 in symbols.

B shows a thousand being regrouped as 10 hundreds. B shows the regrouped numerals in the boxes. B shows 1,843 being subtracted from the regrouped 4,485. (3 thousands, 14 hundreds, 8 tens and 5 ones.)

C shows the difference after subtraction.

D shows the numerical process in relation to the symbolic presentation.

Give children many opportunities to practice this type of exercise.

SIXTH ACTIVITY FOR SKILL B (CONTINUED)

Prepare a worksheet with the following type of exercises drilling regrouping thousands to hundreds in subtraction problems.

I. Dibuja los símbolos en los cuadros y resta.

Ejemplo: Quítale 2,735 a:

	Regrupa y resta	¿Cuánto queda?
5 4 9 8	4 14 9 8	2 7 6 3
□ □ □ □ □	□ □ □ □ □	□ □ □ □ □
□ □ □ □ □	□ □ □ □ □	□ □ □ □ □
...	...	...

$$\begin{array}{r} 5498 \\ - 2735 \\ \hline 2763 \end{array}$$

1. Quítale 3,612 a:

	Regrupa y resta	¿Cuánto queda?
6 2 4 2		
□ □ □ □ □	□ □ □ □ □	□ □ □ □ □
□ □ □ □ □		
□ □ □ □ □		
□ □ □ □ □		

$$\begin{array}{r} 6242 \\ - 3612 \\ \hline \end{array}$$

2.

Quítale 926 a:

	Regrupa y resta	¿Cuánto queda?
1 2 6 8		
□ □ □ □ □	□ □ □ □ □	□ □ □ □ □
□ □ □ □ □		
□ □ □ □ □		
□ □ □ □ □		

$$\begin{array}{r} 1268 \\ - 926 \\ \hline \end{array}$$

II. Resta:

3.
$$\begin{array}{r} 5625 \\ - 2810 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 8139 \\ - 2905 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 1305 \\ - 501 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 3458 \\ - 1726 \\ \hline \end{array}$$

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT V: ASIA

SEVENTH
ACTIVITY
FOR
SKILL B

Prepare a worksheet that reviews all the regrouping presented in Skill F. Example subtraction story problems are also given.

Resta:

$$\begin{array}{r} 1. \quad 43 \\ - 29 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 51 \\ - 35 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 456 \\ - 291 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 626 \\ - 374 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 3392 \\ - 1541 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 8267 \\ - 3615 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 436 \\ - 219 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 592 \\ - 346 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 825 \\ - 461 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 8362 \\ - 5138 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 7618 \\ - 3264 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 9199 \\ - 4545 \\ \hline \end{array}$$

Resuelve: Contesta usando oraciones completas.

13. Yi Un-sang vive en Corea. Tiene 19 años. Su padre tiene 42 años.
¿Cuántos años menos tiene Yi Un-sang que su padre?
14. Kikuko que vive en Japón, compró una cámara Nikon que le costó 982 yens.
Su hermano Haruo compró una cámara Yashica que le costó 866 yens.
¿Cuánto más pagó Kikuko por su cámara?
15. Un día, Kikuko vio el cargamento de carros japoneses en un buque. Cargaron
120 Toyotas y 95 Hondas. ¿Cuántos más Toyotas cargaron que Hondas?

SEVENTH ACTIVITY FOR SKILL B (CONTINUED)

16. Nyima vive con su hermano Tendzin en Tibet; el techo del mundo. En el famoso Festival de Cometas, el cometa de Nyima subió 1,250 pies de altura. El cometa de Tendzin subió 940 pies. ¿Cuánto más subió el cometa de Nyima que el de Tendzin?
17. Mohandas Gandhi el gran líder de India nació en 1869. Murió en 1948. ¿Cuántos años vivió Gandhi?
18. Coi Lan vive y asiste a la escuela en Viet Nam. En la clase de ciencia, aprendió que un año en la Tierra es de 365 días y un año en Marte es de 687 días. ¿Cuántos días más largo es el año en Marte?

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT V: ASIA

SKILL C: Identifying value of United States coins and combining coins, computing their sums.

VOCABULARY:

value
standard unit
of measure
dime
nickel
penny
quarter
half-dollar
dollar

"valor"
"la unidad de medida
que sirve de norma"
"vellón de diez"
"níquel"
"centavo"
"peseta"
"medio peso"
"dólar"

NOTE:

In this skill, activities will be given introducing the United States Coins. The coins will be introduced in the following sequence:

1. dime
2. nickel
3. penny
4. quarter
5. half-dollar
6. dollar

This sequence has been selected because when children see a group of coins and are asked to add them. They often start counting the pennies first, then the nickels, dimes, etc. . . This is a difficult way to count because more often than not, no tens or five are formed when counting pennies first. Therefore, we suggest that when children learn and practice combining coins of different values, they learn to count the coins of larger value first. Then add the rest of the coins in an order of decreasing value.

FIRST
ACTIVITY
FOR
SKILL C

In a class discussion, make a list of all the things in which people use and need money. Briefly discuss where money comes from and how it is made. (A picture of Fort Knox and uncut sheets of currency would be helpful.) Also, discuss money as a standard unit of measure (value) which people use to buy and sell things. In relation to this, mention the barter system people used to use when there was no money.

SECOND
ACTIVITY
FOR
SKILL C:

INTRODUCING DIMES.

NOTE: When working with money, always try to have either real money or play money available so the children can have "hands on" concrete object experiences.

Show children a dime. Ask them what it is and what value it has. Ask how they would write the value of a dime (10 cents). Write 10¢ and 10 centavos on the chalkboard. Discuss the (c) cent sign as meaning "centavos." Discuss that when writing money, a money symbol must be used.

Write 10 and 10¢ on the chalkboard. Ask which ten stands for money.

Make a link between dimes and "tens" in place value. Discuss how dimes are just like tens.

Have children count by tens to 100. Discuss adding or counting dimes is just like counting by ten.

Show children 3 dimes    . Ask them to count the dimes and add them up. Show on the chalkboard they equal 30¢.

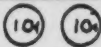
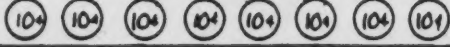
MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT V: ASIA

SECOND ACTIVITY FOR SKILL C (CONTINUED)

Prepare a written exercise with the following type of exercises.

I. Cuenta los vellones de diez y escribe la cantidad por todo en centavos.

		Cantidad
1.		= 20 ¢
2.		= ¢
3.		= ¢

Do not allow children
to forget the ¢ sign.

II. Dibuja vellones de diez para cada cantidad.

		Cantidad
4.	40 ¢ =	
5.	30 ¢ =	
6.	70 ¢ =	

THIRD
ACTIVITY
FOR
SKILL C

Ask children what they can buy for a nickel. Discuss and introduce nickels in this discussion. Show the nickel and ask the value and have them write the value of 1 nickel on the chalkboard. Remind them to use the cent sign (¢). Combine 2, 3, 4, etc... nickels together and ask children the value. Write the value on the chalkboard. Discuss that counting nickels is just like counting by fives.

Prepare a written exercise with the following type of exercises:

I. Cuenta los níqueles 7 escribe la cantidad.

	Cantidad
1. 	= 10¢
2. 	= 25¢
3. 	= 4

II. Dibuja níqueles para cada cantidad.

Cantidad	
4. 20¢ =	
5. 5¢ =	
6. 30¢ =	

FOURTH
ACTIVITY
FOR
SKILL C

INTRODUCING PENNIES.

Show children a penny. Ask the value of a penny. Discuss that a penny equals 1 cent. Discuss that penny is just like a "one." You can discuss how there are 10 pennies to a dime just like there are 10 ones to a ten.

Discuss how 5 pennies equals 1 nickel.

Using dimes, nickels and pennies, combine the coins in different combinations and add them.

Teach children to add the dimes first, then the nickels second and the pennies last.

Allow children to make up their own combinations, playing a game with one another, seeing if they can properly add and determine the amount of cents in a set of coins.

PLAY "EL PRECIO CORRECTO."

Place a pile of dimes, nickels and pennies on a table. Have objects that are priced, or pictures of priced objects. (Cars, combs, balls, candy, etc...) Play a game in which a player selects an object. From the pile of coins, the player must select coins to buy the objects. The child should use dimes, nickels and pennies, if possible, and be encouraged to form the sums of money starting dimes first, nickels second and pennies last. (NOTE: This game can be played using dollars, half-dollars and quarters.)

FOURTH ACTIVITY FOR SKILL C (CONTINUED)

Prepare a written exercise with the following type of exercises to review and use dimes, nickels and pennies. (All the exercises listed below can be modified to practice with quarters, half-dollars and dollars.)

I. Cuenta las monedas y escribe la cantidad.

	Cantidad
1.    	= 4 ¢
2.   	= 12 ¢
3.    	=

II. Dibuja vellones, níqueles y centavos para enseñar cada cantidad.

Cantidad
4. 13 ¢ =   
5. 21 ¢ =    
6. 33 ¢ =

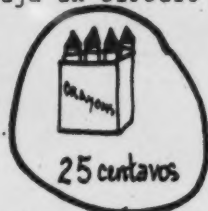
III. En cada fila, ¿cuál grupo de monedas tiene más valor?

7. a.  b.    c. 
8. a.    b.   c.  

FOURTH ACTIVITY FOR SKILL C (CONTINUED)

IV. Dibuja un círculo alrededor de cada cosa que cuesta más de un vellón.

9.



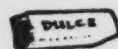
25 centavos



5¢



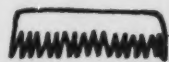
4 níqueles



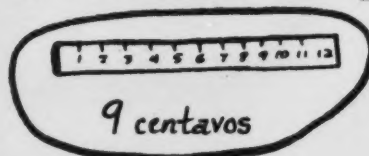
10¢

V. Dibuja un círculo alrededor de cada cosa que cuesta menos de 10¢.

10.



1 vellón 2 centavos



9 centavos



1 níquel 3 centavos



2¢

VI. ¿Cuántos centavos hay en cada grupo de monedas?

11. 1 vellón y 4 centavos = ¢

12. 2 vellones y 2 níqueles = ¢

13. 1 vellón, 1 níquel y 3 centavos = ¢

VII. Da el valor en centavos y níqueles.

14. 1 vellón vale: centavos o níqueles.

15. 2 vellones valen: centavos o níqueles.

FIFTH
ACTIVITY
FOR
SKILL C

Prepare a written exercise to practice working with quarters.

I. Cuenta las monedas y escribe la cantidad.

	Cantidad
1.   	= 27¢
2.   	=
3.     	=

II. Dibuja las monedas para enseñar cada cantidad.

Cantidad	
4. 25¢	= 
5. 29¢	=     
6. 36¢	=

FIFTH ACTIVITY FOR SKILL C (CONTINUED)INTRODUCING QUARTERS.

Introduce quarters by:

1. Counting out 25 pennies and put them in a pile.
2. Gather 2 dimes and 1 nickel and put them near the pennies.
3. Gather 5 nickels and put them near the pennies.

Ask children the value of each group of coins (25c). Ask children if they know a coin that equals 25c.

Show and introduce the quarter, emphasize that a quarter equals .25 cents.

Add quarters to the pile of money used to play the game, "El precio correcto," which was explained in Activity Four of Skill C.

Combine quarters with other coins and find their sums.

IMPORTANT: When counting coins that include quarters, dimes, nickels and pennies, count the quarters first, then the dimes, nickels and pennies.

Play "El precio correcto."

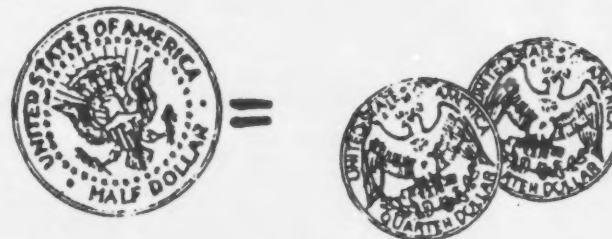
SIXTH
ACTIVITY
FOR
SKILL C

INTRODUCING HALF-DOLLARS.

Show children a half-dollar.

Ask if they know the value of it. Allow children to guess at its value. Discuss that the half-dollar is worth 50 cents. Then, do the following:

Place a half-dollar on the left side of a desk or table with an equal sign placed right next to it.



With the pile of coins near by, have children find coins and coin combinations that are equal to 50¢. Have them place the coins in piles on the other side of the desk.

Simultaneously, make the following chart on the chalkboard as the children place the coins on the desk.

Medio peso esta igual a:

1. 50 centavos
2. 5 vellones
3. 10 niqueles
4. 2 pesetas
5. 1 peseta, 2 vellones, 1 níquel, etc. . .

Allow children to combine half-dollars with other coins and find their sums. Play "El precio correcto."

When counting coins that include half-dollars, count the half-dollars first before counting the other coins.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT V: ASIA

SIXTH ACTIVITY FOR SKILL C (CONTINUED)

Prepare a written exercise to practice working with half-dollars.

I. Cuenta las monedas y escribe la cantidad.

	Cantidad
1.  	= 51¢
2.    	=
3.   	=

II. Dibuja las monedas para enseñar cada cantidad.

Cantidad
4. 50¢ = 
5. 65¢ =   
6. 80¢ =

SIXTH ACTIVITY FOR SKILL C (CONTINUED)

III. Escoge la frase correcta para cada oración.

7. Un centavo vale:

- a. más que un vellón
- b. menos que un níquel

9. Una peseta vale:

- a. más que 3 vellones
- b. menos que un medio peso

8. Un vellón vale:

- a. más que 3 níqueles
- b. menos que una peseta

10. Un medio peso vale:

- a. más que 7 vellones
- b. más que 4 níqueles

ETC. . .

SEVENTH
ACTIVITY
FOR
SKILL C

INTRODUCING DOLLARS.

Prepare the following groups of coins and put them in coffee cans to the side.

100 pennies
10 dimes

4 quarters
2 half-dollars

Start the lesson by asking four children to count how many cents are in each coffee can. While the four children are counting, review penny, nickel, dime, quarter and half-dollar relationships. Join coins in different combinations. Ask children counting money in the coffee cans to state how much was in each coffee can. Record on the chalkboard.



100 centavos = 100¢



10 vellones = 100¢



4 pesetas = 100¢



2 medio pesos = 100¢

Discuss with children that all of these coins equal 100¢, which is the same thing as a dollar.

100¢ = 1 dolar

SEVENTH ACTIVITY FOR SKILL C (CONTINUED)

Briefly introduce the dollar sign/decimal point notation. Discuss that 1 dollar can be written two ways:

1. 100c
2. \$1.00

Explain that this is the dollar sign.

This is the decimal point.

Make combinations with dollars and coins. Write the notations on the chalkboard. Discuss with the class that one cannot use both symbols (\$. and c) at the same time.

Remind students to start counting the dollars first, then the other coins.

$$\boxed{\$1} \text{ } \textcircled{25} = \begin{cases} 125c \\ \$1.25 \end{cases}$$

EXPLAIN that the numbers to the right of the decimal point are cents, and to the left of the decimal point are dollars.

$$\boxed{\$1} \text{ } \textcircled{50} \text{ } \textcircled{15} = \begin{cases} 165c \\ \$1.65 \end{cases}$$

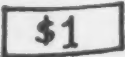
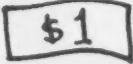
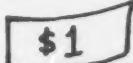
$$\boxed{\$1} \text{ } \textcircled{5} = \begin{cases} 105c \\ \$1.05 \end{cases}$$

ETC. . .

SEVENTH ACTIVITY FOR SKILL C (CONTINUED)

Prepare a written exercise with the following types of exercises.

I. Cuenta las monedas y escribe la cantidad.

			Cantidad
1.	  	=	115 ¢
2.	   	=	¢
3.	     	=	¢

II. Escoge la frase correcta para cada oración.

4. Un dólar vale:

- a. menos que 120 centavos
b. más que 120 centavos

5. Un dólar vale:

- a. más que 3 pesetas
b. más que 3 medios pesos

III. Coloca las monedas de acuerdo a su valor de menos a más.

6. 3 niqueles 7 centavos
7 centavos 3 niqueles
2 vellones 2 vellones
1 peseta 1 peseta
7. 3 pesetas _____
4 vellones _____
5 niqueles _____
1 medio peso _____

SKILL D: Making change to \$1.00.

VOCABULARY: make change "dar cambio"

FIRST
ACTIVITY
FOR
SKILL D

MAKING CHANGE USING SUBTRACTION.

Organize a skit in which one child is going to buy something and the other child is going to sell an object and make change.

José is going to buy a pencil from Roberto that costs 10c.
José goes to Roberto, asks to buy the pencil and gives Roberto a quarter.
Roberto gives José the pencil and 10 cents change (there is a 5c error).

One of two things can be done at this point.

O R

1. Allow the skit to finish. See if any of the audience notices the mistake and picks up on it. If someone does notice, the teacher should intervene to help find out what the correct change should be. If no one notices the mistake, continue with another skit, making the change mistake more noticeable.
2. Instruct José that he should start yelling and screaming, saying to Roberto that he is cheating him giving him the wrong change. The argument can continue until José proves to Roberto, through whatever method he wants to use, that his change should be 15c instead of 10c. The teacher can also intervene at that point.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT V: ASIA

FIRST ACTIVITY FOR SKILL D (CONTINUED)

After the skit, discuss the importance of knowing how to make change, from both Roberto's and Jose's point of view. Discuss how anyone can be taken advantage of and lose money if they do not know how to make change. Emphasize that store owners can make mistakes, some intentional and some not. But, the important thing is to be SMART and know how to make change.

Discuss with children they determine how much change they should get, or give out, by using subtraction. Until they learn to figure things out in their head, a pencil and paper might be helpful.

Example:

1. José buys a pencil that costs 10¢. He gives Roberto 25¢.
 To determine the change, subtract 10¢ from 25¢. 25¢
 The difference is 15¢, so the change would be 15¢. -10¢
 This change could be returned to José as 1 dime 15¢
 and 1 nickel.

2. María works at McDonald's. A customer orders a cheeseburger 50¢
 which costs 32¢. The customer gives Maria 50¢. To determine -32¢
 the change, subtract 32¢ from 50¢. The change would be 18¢. 18¢

Repeat with other examples.

Using play money, play a "Buy and Sell" game in which one player buys something and the other sells the object, giving back correct change using subtraction. Objects and/or pictures from "El precio correcto" can be used. But children doing the buying should remember to give the seller more than the actual price so the seller can make change.

SECOND
ACTIVITY
FOR
SKILL DCOUNTING UP METHOD OF MAKING CHANGE.

The counting up method is when the person giving the change states the price of the object bought, and then gives out the change, counting the money that is given until the amount originally given by the purchaser is reached. For example: Jose buys a pencil that costs 10c. He gives Roberto 25c. Roberto would give the pencil to Jose and say 10c, then he would give Jose a dime and say 20c and give a nickel more and say 25c. The dime and nickel Roberto gave to Jose add up to 15c, the correct change. This is the method used in most stores.

To introduce the "Counting Up Method Of Making Change," demonstrate the method with the children. Ask if they have ever been to the supermarket or another store with their parents when the clerk counted out change using this method.

Give children the opportunity to practice this method of making change playing the "Buy and Sell" game mentioned previously.

Remind children that this method of making change is almost exactly the same thing as the adding up method of solving subtraction problems taught in Unit II. To solve 17 minus 9, count up from 9 to 17 to solve the difference. The number of numbers counted is the difference. (10, 11, 12, 13, 14, 15, 16, 17 = 8 is the difference.)
1, 2, 3, 4, 5, 6, 7, 8

At first, it is suggested that children not have to give change involving pennies. Keep prices at intervals of 5's and 10's so the change will also be at the same interval. Also teach children to count out the change in the easiest manner.

SECOND ACTIVITY FOR SKILL D (CONTINUED)

For example: If a clerk receives 50¢ and has to give change for an item that costs 15¢, the clerk would say 15¢, then give back a dime so that he/she is at 25¢. Once at 25¢, all the clerk has to do is give back a quarter and he/she has arrived at 50¢, the amount given by the buyer.

REMEMBER: The price of the object (15¢) and the change (35¢) should always equal the amount given by the buyer (50¢).

Later, once children are able to count out change at intervals of 5 and 10, give problems in which pennies are involved. THIS IS DIFFICULT AND CHILDREN WILL NEED EXTRA HELP IN ORDER TO DO THIS.

When pennies are involved in change, THEY SHOULD BE COUNTED FIRST, until a 5 or 10 interval is reached.

For example:

A piece of candy costs 7¢. A person buys the candy and gives the clerk a quarter (25¢). The clerk would give the buyer the candy stating 7¢, then count out 3 pennies to get to 10¢ (saying 8, 9, 10). Once at 10 it is easy. Then count out a dime to get to 20¢ and a nickel more to get to 25¢.

ALLOW LOTS OF PRACTICE USING PLAY MONEY.

THIRD
ACTIVITY
FOR
SKILL D

The following written exercises are example exercises to practice making change. Children may use either method of making change to complete the exercises. In the first exercise below, 25c is given to buy each object. The price of each object is given and then the student must X out the coins indicating the correct change.

FIRST
EXERCISE

PAGA 25c

20c	15c	12c
------------	------------	------------

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MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT V: ASIA

THIRD ACTIVITY FOR SKILL D (CONTINUED)SECOND
EXERCISE

Student must mark in number of pennies, nickels and dimes that would make up the correct change.

Tienes una peseta para gastar. ¿Qué serás tu cambio si compres:

Tu Cambio

1. dulce 10c
2. botella de soda 12c
3. sandwich 18c
4. sello 15c

Centavos	Níqueles	Vellones
	1	1
3		1
2	1	

ETC. . .

THIRD ACTIVITY FOR SKILL D (CONTINUED)

THIRD EXERCISE This exercise is very similar to the previous one. Play money should be used when doing this type of exercise. This exercise could also be done in pairs playing "Buy and Sell."

Enseña el cambio

El dinero que tiene.	Va comprar	El cambio en centavos 1c	níqueles 5c	vellones 10c	pesetas 25c	medio peso 50c
1. 25c	 10c		1	1		
2. 75c	 50c				1	
3. 95c	 69c	1	1	2		
4. 75c	 52c	3		2		

NOTE: There are many commercial games on the market which help children in making change.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT V: ASIA

SKILL E: Writing money using dollar sign (\$) and decimal notation (.) to a total sum of \$10.00.

VOCABULARY:

cent sign
dollar sign
decimal point

"signo de centavos"
"signo de dólares"
"punto decimal"

**FIRST
ACTIVITY
FOR
SKILL E**

Show children 2 dollars, 1 half-dollar and 4 pennies. Ask children how this can be written. Write on the board 254¢. While this is correct, discuss with children that when dollars are written, the dollar sign (\$) and the decimal point (.) are used. So, the money showed would be written \$2.54 -- "2 dolares, 54 centavos"

\$ DOLARES . CENTAVOS

Point to the decimal point. Discuss how this separates dollars from cents. Cents are written to the right of the decimal point and dollars are written to the left.

Discuss how it is very important not to forget the decimal point. Five dollars is written \$5.00. But by forgetting the decimal point, \$500 becomes five hundred dollars. Quite a difference!

FIRST ACTIVITY FOR SKILL E (CONTINUED)

Write several amounts of money on the chalkboard using the dollar sign (\$) and the decimal point (.). Have children read the amounts, saying dollars first and cents second.

\$1.25

\$9.95

\$2.50

\$2.01

Make special mention of this. Explain that because there are no "tens," this digit must be "zero."

To practice using and understanding the dollar sign and decimal point, write the following type of exercises on the chalkboard. Later, make a worksheet of the same type of problems.

Completa

1. \$1.00 = 1 dolares y 0 centavos.
2. \$2.52 = 2 dolares y 52 centavos.
3. \$.98 = dolares y centavos.
4. \$5.15 = dolares y centavos.

Escribe la cantidad usando el signo de dólares con el punto.

5. 1 dolar y 25 centavos = \$1.25
6. 2 dolares y 37 centavos =
7. 3 dolares y 0 centavos =
8. 8 dolares y 95 centavos =

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT V: ASIA

SECOND
ACTIVITY
FOR
SKILL E

LEE el
DINERO
BINGO

\$1.52	\$10.00	\$.10	\$4.95	\$9.99
\$2.05	\$9.05	\$8.42	\$.95	\$5.15
\$.45	\$8.14	Gratis	\$1.02	\$4.29
\$2.62	\$7.56	\$6.30	\$.05	\$1.82
\$3.67	\$.52	\$5.55	\$4.69	\$5.05

BINGO GAME

To help students read money with the dollar sign/decimal point notation, play "Lee el dinero bingo." Write 24 different amounts of money on the board. Read each amount with the students. Distribute a Bingo Sheet and have the students write the money amounts in the empty spaces. Students should mix up the location of each amount, so that every Bingo Sheet is different. Once all Bingo Sheets are prepared, the amounts are read off and children find and cover the amount on their Bingo Sheets. The game is played just like any regular Bingo Game.

THIRD
ACTIVITY
FOR
SKILL E

ADDING AND SUBTRACTING MONEY.

Discuss with children that adding and subtracting money is just like adding and subtracting numerals except for one important difference. When adding and subtracting money, you must not forget the money signs: c, \$, and . signs.

PRESENT:	13		13c
	<u>+14</u>	and	<u>+14c</u>
			↓
PRESENT:	542		\$5.42
	<u>-316</u>	and	<u>- 3.16</u>
			↓
			\$.

They are the same except you must remember to write the cent sign in the answer.

Again, discuss how they are the same. Regrouping is the same in money as it is with just numbers. The tens place in numbers problems means tens in money, hundreds means hundreds, etc.

RULE OF THUMB: Teach children that whenever they are adding and subtracting money, before doing anything, they should "bring down" the c sign or the \$ sign and . point and write them in the space of the sum or difference. Once this is done, then they can add or subtract as usual.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT V: ASIA

THIRD ACTIVITY FOR SKILL E (CONTINUED)

Prepare a written exercise to practice adding and subtracting money. Each section of the worksheet would probably be a separate worksheet.

I. Suma o resta:

a.
1.
$$\begin{array}{r} 13¢ \\ + 14¢ \\ \hline \end{array}$$

b.
$$\begin{array}{r} 28¢ \\ + 56¢ \\ \hline \end{array}$$

c.
$$\begin{array}{r} 52¢ \\ - 29¢ \\ \hline \end{array}$$

d.
$$\begin{array}{r} 92¢ \\ - 26¢ \\ \hline \end{array}$$

2.
$$\begin{array}{r} 33¢ \\ 14¢ \\ + 39¢ \\ \hline \end{array}$$

$$\begin{array}{r} 28¢ \\ 29¢ \\ + 12¢ \\ \hline \end{array}$$

$$\begin{array}{r} 50¢ \\ - 35¢ \\ \hline \end{array}$$

$$\begin{array}{r} 43¢ \\ - 25¢ \\ \hline \end{array}$$

3.
$$\begin{array}{r} \$2.14 \\ + 2.58 \\ \hline \end{array}$$

$$\begin{array}{r} \$4.36 \\ + 1.81 \\ \hline \end{array}$$

$$\begin{array}{r} \$5.62 \\ - 3.16 \\ \hline \end{array}$$

$$\begin{array}{r} \$6.73 \\ - 3.49 \\ \hline \end{array}$$

4.
$$\begin{array}{r} \$1.23 \\ 2.12 \\ + 3.15 \\ \hline \end{array}$$

$$\begin{array}{r} \$3.43 \\ 2.92 \\ + 3.41 \\ \hline \end{array}$$

$$\begin{array}{r} \$9.25 \\ - 3.84 \\ \hline \end{array}$$

$$\begin{array}{r} \$12.99 \\ - 3.05 \\ \hline \end{array}$$

679

680

THIRD ACTIVITY FOR SKILL E (CONTINUED)

5. Kim tiene 48 centavos en su banco. Puso 30 centavos más. ¿Cuánto tiene por todo.
6. Alfredo fue para ver el juego de pelota. Entró al parque con 95¢. El gasto 69¢ comprando una soda y una bolsa de "popcorn." ¿Cuánto dinero le queda?
7. Mei Li vendió una bolsa de arroz por \$1.29 y una bolsa de té por \$5.99. ¿Cuánto dinero se ganó Mei Le.
8. Harou compró un radio por \$8.05. Le dio al dueño de la tienda \$8.05. ¿Qué cambio recibirá Harou?

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT V: ASIA

SKILL F: Applying money skills in a Japanese-American Market Day.

VOCABULARY:

money exchange	"intercambio de dinero"
market	"mercado"
stores	"tienda"
yen	"unidad de la moneda japonesa"
currency	"dinero en circulación"

INTRODUCTION: The activities given in this skill are good culminating activities to the study of money. All the skills learned are applied in the Japanese-American Market Day activity. (To be explained later.)

FIRST ACTIVITY FOR SKILL F Teach children how to count from 1 to 10 in Japanese. (SEE BELOW.) In the Japanese-American Market Day activity, children will have the opportunity to use the Japanese numbers. This activity should be both fun and challenging. Put the Japanese numbers on a piece of poster board and hang them in the room so children can refer to them. Have contests to see how many children can name the numbers.

JAPANESE NUMBERS 1 - 10

1 - ichi	6 - roku
2 - ni	7 - sichi (schi)
3 - san	8 - hachi
4 - chi (she)	9 - kyu (cue)
5 - go	10 - zyu (jew)

SECOND
ACTIVITY
FOR
SKILL F

The Yen and a Money Exchange:

Teach the Japanese unit of money or currency, the yen. Discuss how different countries have different currencies. The United States of America has the dollar, the Spanish have the peseta, the French the franc, the Mexicans the peso, etc. . . The Japanese have the yen.

Discuss that when in Japan, you buy things paying with yen . Just as in America, you buy things paying with dollars.

Introduce the concept of a "Money Exchange." Pose the question, if a Japanese person comes to America with nothing but "yen " in his/her wallet, what must he/she do? Or, if an American visits Japan, and he/she wants to buy something, but he/she only has dollars, what must he/she do?

Discuss how each person would go to a money exchange. The Japanese would go to the Money Exchange and exchange his/her yen for dollars. The American would exchange his/her dollars for yen . (Simple enough the children will say.)

But, discuss with the children that there is a "catch," (something they must pay extra close attention to if they are going to understand a Money Exchange.)

The "catch" is that most of the time, two currencies (the yen and the dollar) do not have the same exchange rate. Explain, that that means 1 yen is not equal to 1 dollar. So you cannot exchange yen and dollars equally. (Today, about 360 yen = 1 dollar, but this rate is constantly changing on the international monetary exchanges.)

For the purposes of the Japanese-American Market Day, the exchange rate will be kept simple:

$$100 \text{ yen} = 1 \text{ dollar}$$

OR

$$1 \text{ dollar} = 100 \text{ yen}$$

Practice exchanging yen and dollars. For example, 9 dollars exchanged for yen would be 900 yen .

SECOND ACTIVITY FOR SKILL F (CONTINUED)

Make a chart to show the exchange on the chalkboard.

25 cents = 25 yen

50 yen = 50 cents

75 cents = 75 yen

200 yen = 2 dollars

1 dollar = 100 yen

400 yen = 4 dollars

5 dollars = 500 yen

1200 yen = 12 dollars

10 dollars = 1000 yen

2000 yen = 20 dollars

E T C . . .

Finish the discussion making sure the children understand that the Japanese yen and the American dollar have different values. Give some examples:

A baseball might cost 1 dollar in American. The same baseball might cost 100 yen in Japan.

Also, make sure children understand what a Money Exchange is. They must understand this because the children will be exchanging yen and dollars at a Money Exchange during the Japanese-American Market Day.

THIRD
ACTIVITY
FOR
SKILL F

Teach and reproduce Chinese symbols for the numbers 1 to 10.

Display the symbols on a large piece of posterboard. Have children paint the symbols as an art project. The symbols should be painted, so provide each child with paint, brush and paper. This activity can be done as a whole group or individually. The finished paintings should be displayed.

NOTE: It should be explained that these symbols are Chinese symbols which the Japanese also use. Japanese children would learn how to form the symbols in school at a fairly early age. Chinese symbols are more typically referred to as "characters."

一	1
二	2
三	3
四	4
五	5
六	6
七	7
八	8
九	9
十	10

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT V: ASIA

FOURTH
ACTIVITY
FOR
SKILL FEXPLANATION OF JAPANESE-AMERICAN MARKET DAY.

Japanese-American Market Day is an activity in which children set up their own stores and practice buying and selling items in a real life like situation. In the buying and selling, the children are manipulating money, counting it, making change, gaining an understanding of its value as a medium of exchange, and learning about a currency of another country. (The Yen of Japan.) This activity would fit very nicely into a social studies unit studying Japan. The Market Day activity can be done with a large group of 25-30 children or adopted to be done with as few as 4-6 students. The following procedure is suggested in organizing the activity.

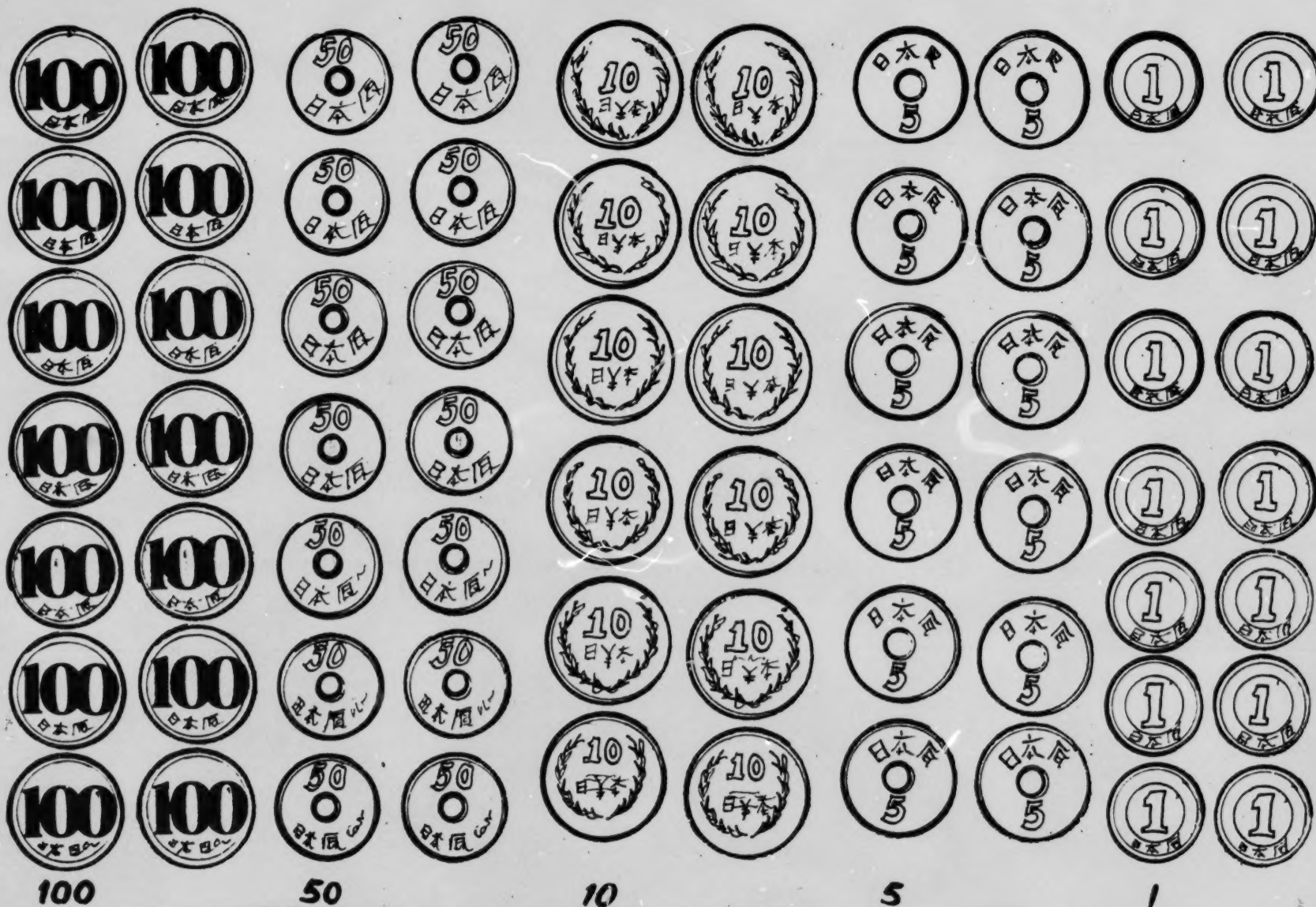
1. Allow children to organize and set up stores of their choice in either Japan or America. The stores could be Sears, Bradlees, Stop and Shop, Caldors, etc. . . (Stores from the students' experience. Children can make up Japanese names for the Japanese stores.) Stores may be set up by as many as four children or by as few as one student, depending on the class size. Students must decide whether they want to set up an American store or a Japanese store.
2. Once the stores are organized, children should bring in newspaper and magazine ads (pictures). They should cut out the ads and pictures and paste them to pieces of construction paper for display purposes.

Each item should be priced either in dollars and cents in the American stores, and in yen in the Japanese stores. (¥, this is the abbreviation for yen .) Children will need assistance in appropriately pricing items in yen .

3. Ditto sheets of play money, both in dollars and cents and yen , should be distributed. (See example money sheets on the following pages.) Children should cut out the money and keep it in an envelope. (The amount of money distributed will vary with each individual teacher's plans and desires. But it must be remembered, due to the dollar to yen exchange rate, many more yen than dollars will have to be distributed. The following amounts of money are suggested: \$33.00 in bills, \$9.90 in change and 4,020 yen .

Trays to act as cash registers can be made quite simply from shoe boxes and pieces of oaktag. All children will receive an equal amount of money.





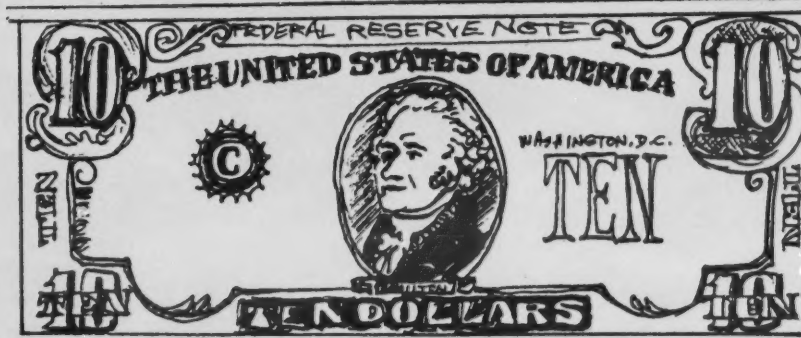
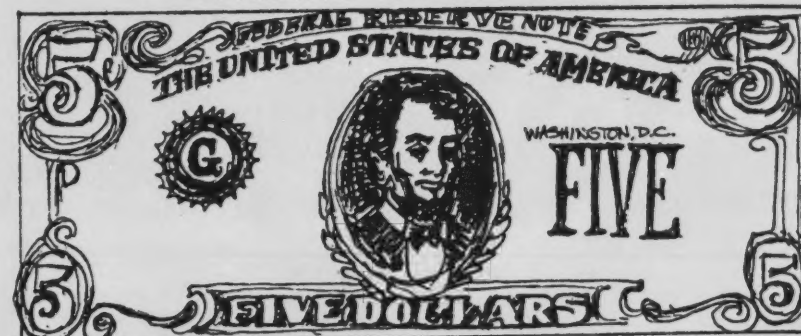




REPRESENTATION OF COIN CURRENCY OF UNITED STATES OF AMERICA

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT V: ASIA



FOURTH ACTIVITY FOR SKILL F (CONTINUED)

4. One or two children should be selected as the Money Exchangers. These children should be good math students, adept at exchanging dollars and yen . (A contest could be set up to see who is going to be the Money Exchangers.) During the Market Day Activity, they will be responsible for exchanging dollars for yen and vice versa.
5. Store space can be formed by sliding desks together against a wall, using tables, shelves, etc. . . Children will come up with creative and inventive uses of space and classroom objects.

Formally or informally, children should be encouraged to come up with:

1. creative displays
2. their own advertising, publicizing their own wares
3. store signs
4. business slogans or jingles
5. general attractiveness

One person of each store should be the store manager. He/she decides the work schedule (who will tend the store and who will be buying at the other stores), and the general overseeing of the store's operation.

6. Before the Market Day activity is begun, the classroom should be divided so that one side of the room has Japanese stores and the other half has American stores. The Money Exchange should be situated in an easily accessible center area of the room.

FOURTH ACTIVITY FOR SKILL F (CONTINUED)

7. **Procedure:** When the Market Day begins, children are free to travel from store to store buying things. When an item is purchased, the store clerk will cut the picture of the item from the piece of construction paper and give it to the buyer in exchange for the paper money. Children will collect all the items they have bought. However, two major rules exist, if a person desires to buy something at a Japanese store he/she must pay for the item in yen . They should also try to use the Japanese numbers in the transactions. Conversely, items bought at an American store must be paid for in dollars and cents. Also, when store owners count out change, they must use either the subtraction method or the counting up method of giving change. The buyer has the right to see the correct change figured out with pencil and paper. (The counting up method for returning change should be encouraged.)
8. A Market Day Sargeant of Arms should be selected before the activity begins. He/she will be in charge of settling any disputes regarding correct change.
9. The length of the activity will vary depending on the size of the class and the number of stores. The activity could last anywhere from one to three hours spread out over one to three days.
10. To conclude the activity, the following should be done.
 - A. Each store should add up all their money to determine their store's profit. Determine totals either in dollars or yen . Each store started out with an equal amount of money. It will be interesting to see which store did well.
 - B. Discuss why a store did well. Discuss what it was that made people want to buy at that store.
 - C. Discuss what the children learned from the experience. Discuss if they learned the importance of knowing how to count money and make change correctly.

- SKILL A: Rounding one and two digit numbers to the nearest 10.
- SKILL B: Regrouping twice in addition.
- SKILL C: Regrouping twice in subtraction (no zero in tens place).
- SKILL D: Reviewing multiplication/division as inverse operations.
- SKILL E: Multiplication and division with tables of six through nine.
- SKILL F: Memorizing multiplication tables through five.
- SKILL G: Interpreting simple graphs.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VI: ESKIMOS

SKILL A: Rounding one and two digit numbers to the nearest ten.

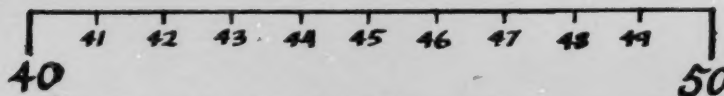
VOCABULARY:

round
estimate
nearest
midway
estimated sum
estimated
difference
actual
difference

"redondear"
"estimado"
"mas cerca"
"a mitad"
"suma estimada"
"suma
actual"
"diferencia
actual"

FIRST
ACTIVITY
FOR
SKILL A

Using a number line review finding and counting the tens. Focus the students' attention to the numbers between 40 and 50 on the number line and ask the following questions:



1. ¿Está el 47 más cerca del 40 o del 50?
2. ¿Está el 41 más cerca del 40 o del 50?
3. ¿Está el 43 más cerca del 40 o del 50?
4. ¿Está el 49 más cerca del 40 o del 50?
5. ¿Está el 44 más cerca del 40 o del 50?

FIRST
ACTIVITY
FOR
SKILL A
(CONTINUED)

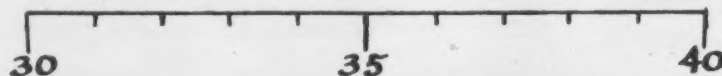
Focus the students' attention to the numbers between other consecutive tens and ask the same type of questions. Avoid using multiples of five.

- ¿Está el número 17 más cerca del 10 o del 20?
 ¿Está el número 31 más cerca del 30 o del 40?
 ¿Está el número 82 más cerca del 80 o del 90?
 ¿Está el número 96 más cerca del 90 o del 100?
 ¿Está el número 26 más cerca del 20 o del 30?
 ¿Está el número 74 más cerca del 70 o del 80?

Explain that what they have been doing is rounding to the nearest ten (redondeando a la decena más cercana).

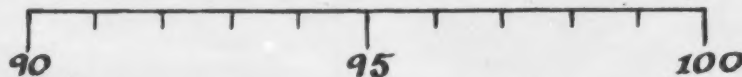
Now give a number with five in the ones place and ask:

¿Está 35 más cerca del 30 o del 40?



Ask for another number multiple of five without explaining anything.

¿Está 95 más cerca del 90 o del 100?



¿Qué haremos?

Explain that in numbers with five in the ones place, we have to all agree to round them to the lowest or the highest ten. In most cases, it has been agreed to round it to the highest ten so:

- 35 would be rounded to 40.
 95 would be rounded to 100.

How about. . .

- 15 ?
 55 ?
 25 ?
 75 ?

709

710



MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VI: ESKIMOS

SECOND
ACTIVITY
FOR
SKILL A

Have students practice rounding to the nearest ten completing the following exercise:

Usando la recta numérica Popolepe contesta.

1. ¿Cuál de estos números está más cerca 40 que del 50?
a. 44 b. 46 c. 43 d. 49
2. ¿Cuál de estos números está más cerca del 70 que del 60?
a. 66 b. 64 c. 61 d. 68
3. Redondea a la decena más cercana.
a. 13 g. 29
b. 16 h. 38
c. 52 i. 7
d. 44 j. 19
e. 71 k. 66
f. 84 l. 81

THIRD
ACTIVITY
FOR
SKILL A

Introduce the term estimate as being a good guess of a problem. We can estimate a sum or a difference in order to have in mind, more or less, what the actual sum or the actual difference is going to be. We estimate by rounding the numbers to the nearest ten and computing.

$\begin{array}{r} 48 \\ +17 \\ \hline 65 \end{array}$		suma redondea a 50 redondea a +20 $\begin{array}{r} 50 \\ +20 \\ \hline 70 \end{array}$	$\longrightarrow$ suma estimada
$\downarrow$ suma actual			
$\begin{array}{r} 49 \\ -21 \\ \hline 28 \end{array}$		resta redondea a 50 redondea a -20 $\begin{array}{r} 50 \\ -20 \\ \hline 30 \end{array}$	$\longrightarrow$ diferencia estimada
$\downarrow$ diferencia actual			

Practice:

1.
$$\begin{array}{r} 37 \\ +42 \\ \hline \end{array}$$
 redondea a 40
 redondea a +40
 80



La suma actual debe estar cerca de 80.

¿Lo está? _____

2.
$$\begin{array}{r} 38 \\ +29 \\ \hline \end{array}$$
 redondea a 40
 redondea a +30



suma actual



suma estimada

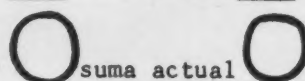
¿Esta cerca de la suma estimada? _____

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VI: ESKIMOS

THIRD ACTIVITY FOR SKILL A (CONTINUED)

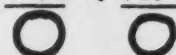
2. $\begin{array}{r} 38 \\ +29 \\ \hline \end{array}$ redondea a 40
 $\begin{array}{r} 30 \\ +30 \\ \hline \end{array}$ redondea a +30



suma actual suma estimada

¿Está cerca de la suma estimada? _____

3. $\begin{array}{r} 53 \\ + 8 \\ \hline \end{array}$ → $\begin{array}{r} 50 \\ +10 \\ \hline \end{array}$



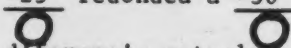
4. $\begin{array}{r} 81 \\ -34 \\ \hline \end{array}$ redondea a 80
 $\begin{array}{r} 50 \\ -30 \\ \hline \end{array}$ redondea a -30



La diferencia actual debe estar cerca de 50.

¿Lo está? _____

5. $\begin{array}{r} 56 \\ -25 \\ \hline \end{array}$ redondea a 60
 $\begin{array}{r} 30 \\ -30 \\ \hline \end{array}$ redondea a -30



diferencia actual diferencia estimada

¿Esta cerca de la diferencia estimada? _____

6. $\begin{array}{r} 93 \\ -71 \\ \hline \end{array}$ → $\begin{array}{r} 90 \\ -70 \\ \hline \end{array}$



7a. $\begin{array}{r} 72 \\ +47 \\ \hline \end{array}$

b. $\begin{array}{r} 85 \\ +29 \\ \hline \end{array}$

c. $\begin{array}{r} 31 \\ +69 \\ \hline \end{array}$

8a. $\begin{array}{r} 86 \\ -49 \\ \hline \end{array}$

b. $\begin{array}{r} 52 \\ -34 \\ \hline \end{array}$

c. $\begin{array}{r} 94 \\ -57 \\ \hline \end{array}$

SKILL B: Regrouping twice in addition.

VOCABULARY:

addition

regroup

ones

tens

hundreds

thousands

twice

"suma"

"reagrupar"

"unidades"

"decenas"

"centenas"

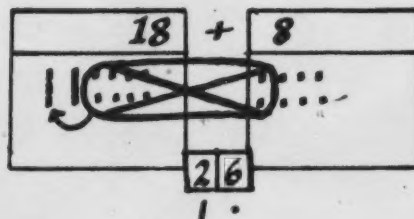
"millares"

"dos veces"

FIRST
ACTIVITY
FOR
SKILL B

Review regrouping once.

A. Ones to tens.



$$\begin{array}{r} 18 \\ + 8 \\ \hline 26 \end{array}$$

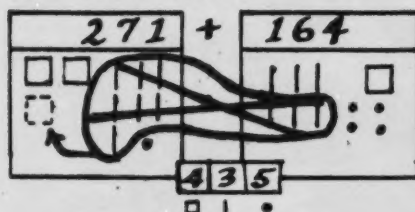
Count ones first, regroup, then count tens.

717

718

FIRST ACTIVITY FOR SKILL B (CONTINUED)

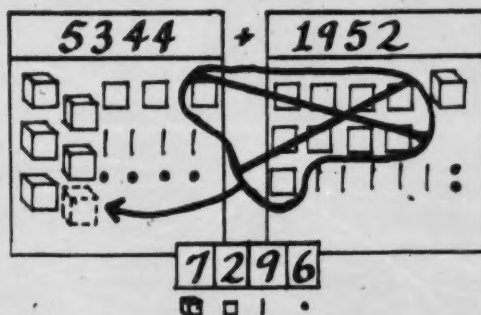
B. Tens to hundreds.



$$\begin{array}{r} 271 \\ + 164 \\ \hline 435 \end{array}$$

Count ones first, then count tens and finally count hundreds.

C. Hundreds to thousands.



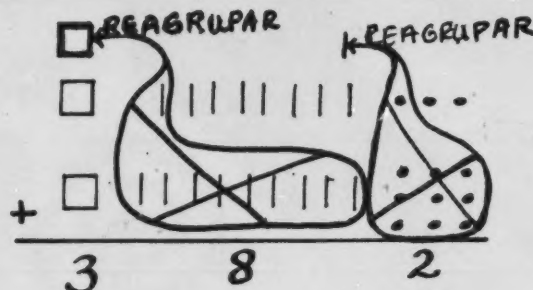
$$\begin{array}{r} 5344 \\ + 1952 \\ \hline 7296 \end{array}$$

Remind students to count ones first. If there are ten or more tell them to regroup. Count the tens. If there are ten or more they should regroup. Then, count the hundreds and regroup if necessary, and finally count the thousands.

SECOND
ACTIVITY
FOR
SKILL B

Present the following problem with the Ten Blocks. Then with the drawings and finally with the numerals.

$$\begin{array}{r} 183 \\ +199 \\ \hline \end{array}$$



Procedure with blocks:

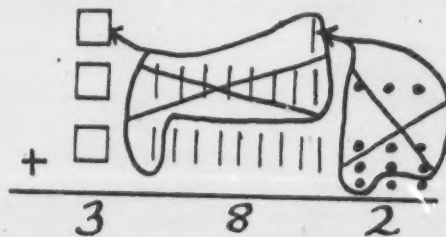
1. Show 183 (1 hundred, 8 tens, 3 ones).
2. Show 199 (1 hundred, 9 tens, 9 ones) and put them together with the 183 to show addition.
3. Count all of the ones.
4. Put ten ones together, take them out, and replace them with one ten.
5. Count the ones again and write the number of ones (2) on the chalkboard.
6. Count all of the tens.
7. Put ten tens together, take them out, and replace them with one hundred.
8. Count the tens again and write the number of tens (8) on the chalkboard to the left of number two.
9. Count the hundreds. Since there are not ten or more we do not regroup.

Go through the same block procedure with the following problem (notice that here tens and hundreds are to be regrouped):

$$\begin{array}{r} 2791 \\ +4776 \\ \hline \end{array}$$

SECOND ACTIVITY FOR SKILL B (CONTINUED)

For each example, go through all the steps, but, this time instead of blocks. use the drawings.



$$\begin{array}{r}
 \text{regrouping} \\
 \text{11} \\
 183 \\
 +199 \\
 \hline
 382
 \end{array}$$

Count ones, regroup, write the number of ones left.
 Count tens, regroup, write the number of tens left.
 Count hundreds, regroup, write the number of hundreds left.
 Count thousands, write the number of thousands.

REMEMBER, ONLY REGROUP IF THERE ARE TEN OR MORE.

Refer to the addition problem and call each step to the students attention.

THIRD
ACTIVITY
FOR
SKILL B

Give students practice exercises like the following (regroup twice).

I. Dibuja la suma. Reagrupa. Resuelve el problema.

EJEMPLO:

$$\begin{array}{r} 586 \\ + 296 \\ \hline 882 \end{array}$$

Diagram illustrating the regrouping process for the example problem. The number 586 is represented by 5 tens rods, 8 tens rods, and 6 units cubes. The number 296 is represented by 2 tens rods, 9 tens rods, and 6 units cubes. The sum is 882, represented by 8 tens rods, 8 tens rods, and 2 units cubes. The diagram shows the regrouping of 10 units cubes into 1 ten rod and 10 tens rods into 1 hundred rod.

a) $\begin{array}{r} 687 \\ + 144 \\ \hline \end{array}$

c) $\begin{array}{r} 4941 \\ + 3694 \\ \hline \end{array}$

b) $\begin{array}{r} 646 \\ + 287 \\ \hline \end{array}$

d) $\begin{array}{r} 1996 \\ + 6213 \\ \hline \end{array}$

II. Suma. Reagrupa las veces que sea necesario.

a) $\begin{array}{r} 563 \\ + 158 \\ \hline \end{array}$

b) $\begin{array}{r} 477 \\ + 145 \\ \hline \end{array}$

e) $\begin{array}{r} 359 \\ + 543 \\ \hline \end{array}$

f) $\begin{array}{r} 1423 \\ + 2991 \\ \hline \end{array}$

e) $\begin{array}{r} 1897 \\ + 8462 \\ \hline \end{array}$

f) $\begin{array}{r} 2382 \\ + 5764 \\ \hline \end{array}$

726

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VI: ESKIMOS

SKILL C: Regrouping twice in subtraction.

VOCABULARY:

subtraction
regroup
ones
tens
hundreds
thousands
twice

"resta"
"reagrupar"
"unidades"
"decenas"
"centenas"
"millares"
"dos veces"

FIRST
ACTIVITY
FOR
SKILL C

Review regrouping once in subtraction.

A. Tens to ones.

Quítale 17 a:

	Reagrupa y resta	¿Cuánto queda?
□ □ 8 2	□ □ 7 12	□ □ 6 5
□ □ 1 .	□ □ 1 .	□ □ 1 .

$$\begin{array}{r} 7 \text{ } 12 \\ 82 \\ -17 \\ \hline 65 \end{array}$$

728

727

FIRST ACTIVITY FOR SKILL C (CONTINUED)

B. Hundreds to tens.

Quítale 223 a:

	Reagrupa y resta	¿Cuánto queda?
••••• ••••• 519	••••• ••••• 4119	••••• 296

$$\begin{array}{r}
 4 \text{ H} \\
 5 \times 9 \\
 - 223 \\
 \hline
 296
 \end{array}$$

C. Thousands to hundreds.

Quítale 728 a:

	Reagrupa y resta	¿Cuánto queda?
••••• 1228	••••• 1228	••••• 500

$$\begin{array}{r}
 1228 \\
 - 728 \\
 \hline
 \end{array}$$

Remind students that the minuend being smaller than the subtrahend is the clue that tells them they have to regroup in subtraction.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VI: ESKIMOS

SECOND
ACTIVITY
FOR
SKILL C

Present a subtraction problem with more than one regrouping like:

$$\begin{array}{r}
 593 \\
 -195 \\
 \hline
 \end{array}$$

1 centena 9 decenas 5 unidades
 3 9 8

Using the Base Ten Blocks, follow the procedure.

1. Show 593 (5 hundreds, 9 tens, 3 ones).
2. Write the subtrahend 195 on the chalkboard in expanded notation form explaining that these many ones, tens and hundreds are to be subtracted from 593.
3. Look at the ones blocks and ask if you can take 5 ones away from 3 ones. Since the answer is no, tell the students that in order to make it possible, they will have to regroup by taking out one ten and replacing it with ten ones, leaving 8 tens and having 13 ones.
4. Now they can take away 5 ones from 13 ones and have 8 ones left.
5. Look at the tens and ask if you can take away 9 tens from 8 tens. Again, explain that in order to make it possible they will have to regroup hundreds to tens by taking 1 hundred out and replacing it with ten tens, having 18 tens and 4 hundreds.
6. Now, they can take away 9 tens from 18 tens and have 9 tens left.
7. Look at the hundreds and ask if you can take away 1 hundred from 4 hundreds. Since the answer is yes the difference would be 3 hundreds.

SECOND
ACTIVITY
FOR
SKILL C
(CONTINUED)

Repeat the block procedure with another problem like:

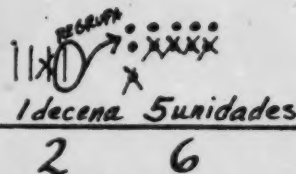
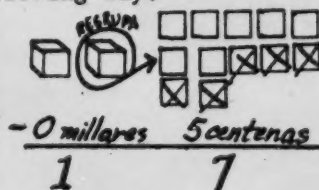
$$\begin{array}{r} 2241 \\ - 515 \\ \hline \end{array}$$

The regrouping in this problem is in two different places.

Use as many examples with blocks as necessary. Encourage students to work some on their own.

Work the same problems on the chalkboard using the drawings instead of blocks and subtracting in the following way:

$$\begin{array}{r} \overset{1}{2} \overset{12}{2} \overset{3}{4} \overset{11}{1} \\ - 515 \\ \hline 1726 \end{array}$$



- Look at ones, regroup, if necessary, subtract.
- Look at tens, regroup, if necessary, subtract.
- Look at hundreds, regroup, if necessary, subtract.
- Look at thousands and subtract.

Refer to the number problem after each step and show how it is done there.

Do as many example problems as necessary. Encourage children to work some examples on their own.

MATHEMATICS CURRICULUM FOR GRADE THREE

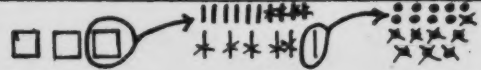
UNIT VI: ESKIMOS

THIRD
ACTIVITY
FOR
SKILL C

Give students practice exercises like the following:

- I. Resuelve el problema de resta. Reagrupa cuando sea necesario. Escribe la resta en números y resuelve.

Ejemplo:



$$\begin{array}{r} \square\square\square \\ - 2 \text{ centenas} \quad 9 \text{ decenas} \quad 8 \text{ unidades} \\ \hline \end{array}$$

$$\begin{array}{r} 2 \quad 15 \quad 17 \\ 387 \\ - 298 \\ \hline 69 \end{array}$$

1)

$$\begin{array}{r} \square\square\square\square \quad || \quad \\ - 1 \text{ centena} \quad 8 \text{ decenas} \quad 8 \text{ unidades} \\ \hline \end{array}$$

2)

$$\begin{array}{r} \square \quad |||| \quad :::: \\ - \quad \quad \quad 6 \text{ decenas} \quad 9 \text{ unidades} \\ \hline \end{array}$$

3.)

$$\begin{array}{r} \square\square\square \quad \square\square\square\square\square \quad || \quad :::: \\ - 1 \text{ millar} \quad 7 \text{ centenas} \quad 9 \text{ decenas} \quad 6 \text{ unidades} \\ \hline \end{array}$$

735

4.)

$$\begin{array}{r} \square\square\square \quad \square\square\square\square \quad ||||| \quad . \\ - 3 \text{ millares} \quad 3 \text{ centenas} \quad 9 \text{ decenas} \quad 7 \text{ unidades} \\ \hline \end{array}$$

736

THIRD ACTIVITY FOR SKILL C (CONTINUED)

II. Resta. Reagrupa cuando sea necesario.

$$\begin{array}{r} a) 381 \\ - 193 \\ \hline \end{array}$$

$$\begin{array}{r} b) 456 \\ - 187 \\ \hline \end{array}$$

$$\begin{array}{r} c) 663 \\ - 386 \\ \hline \end{array}$$

$$\begin{array}{r} d) 854 \\ - 395 \\ \hline \end{array}$$

$$\begin{array}{r} e) 620 \\ - 243 \\ \hline \end{array}$$

$$\begin{array}{r} f) 824 \\ - 467 \\ \hline \end{array}$$

$$\begin{array}{r} g) 6518 \\ - 2756 \\ \hline \end{array}$$

$$\begin{array}{r} h) 9527 \\ - 2873 \\ \hline \end{array}$$

$$\begin{array}{r} i) 9662 \\ - 4837 \\ \hline \end{array}$$

THIRD ACTIVITY FOR SKILL C (CONTINUED)

III. Lee el problema. Resuélvelo sumando a restando. Reagrupa cuando sea necesario.

1. Aguk limpió 332 cueros de foca el año pasado. Este año limpió 198.
¿Cuántos más cueros de foca limpió Aguk el año pasado?

2. Ekaluk vió un témpano de hielo que era 843 pies de alto. Serkok vió uno que era 597 pies de alto.
¿Cuántos pies más alto era el el témpano de hielo que vió Ekaluk?

SKILL D: Reviewing multiplication and division as inverse operations.

VOCABULARY:

multiplication
division
related
rows
columns

"multiplicación"
"división"
"relacionadas"
"filas"
"columnas"

FIRST
ACTIVITY
FOR
SKILL D

Showing the following array on the chalkboard and lead the students to observe that the four sentences are related.

X X X X X X X

X X X X X X X

2 filas de 7 focas = 14 focas

$$2 \times 7 = 14$$

¿Cuántas filas de 7 focas hacen 14 focas?

$$14 \div 7 = 2$$

7 columnas de 2 focas = 14 focas

$$7 \times 2 = 14$$

¿Cuántas columnas de 2 focas hacen 14 focas?

$$14 \div 2 = 7$$

In the same way show several other sets of related multiplication and division examples, using arrays.

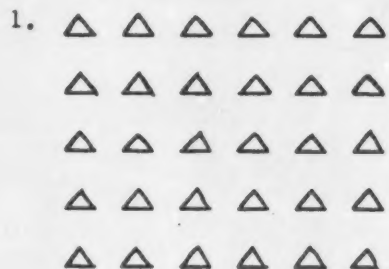
MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VI: ESKIMOS

SECOND
ACTIVITY
FOR
SKILL D

Work the following exercises with the students.

I. Escribe una ecuación de multiplicación y otra de división que sea relacionada.



$$5 \times 6 = 30$$

$$\square \div \square = \square$$

$$30 \div 5 = 6$$

$$\square \times \square = \square$$



$$4 \times 8 = 32$$

$$\square \div \square = \square$$

$$32 \div 4 = 8$$

$$\square \times \square = \square$$

SECOND ACTIVITY FOR SKILL D (CONTINUED)

II. Escribe dos ecuaciones de multiplicación y dos de división para cada array.

1. $\begin{array}{cccccc} x & x & x & x & x & \\ x & x & x & x & x & \\ x & x & x & x & x & \\ x & x & x & x & x & \\ x & x & x & x & x & \\ x & x & x & x & x & \\ x & x & x & x & x & \\ x & x & x & x & x & \end{array}$

2. $\begin{array}{cccccccccccc} x & x & x & x & x & x & x & x & x & x & x & x \\ x & x & x & x & x & x & x & x & x & x & x & x \\ x & x & x & x & x & x & x & x & x & x & x & x \end{array}$

744

III. Escribe dos ecuaciones de multiplicación y dos de división para cada conjunto de numerales.

1. (2, 7, 14)

2. (5, 6, 30)

3. (3, 8, 24)

4. (3, 7, 21)

5. (2, 8, 16)

745

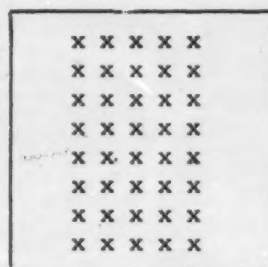
MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VI: ESKIMOS

THIRD
ACTIVITY
FOR
SKILL D

Make a concentration game. For each pair of cards draw an array on one, and the complete set of related multiplication and division sentences on the other.

Place them all face down on a table and find the matching pair by turning two cards over. If they match keep the cards and take another turn. If they do not match turn the cards back and give the next person his/her turn.



8	x	5	=	40
40	÷	5	=	8
5	x	8	=	40
40	÷	8	=	5

MATCHING
PAIR

746

747

FOURTH
ACTIVITY
FOR
SKILL D

Review finding a missing factor.



¿Cómo encontramos el factor que falta?

$$\bigcirc \times 9 = 45$$

Escribiendo el producto como dividendo y el factor dado como divisor.

$$\begin{array}{c} \bigcirc \times 9 = 45 \\ \swarrow \quad \searrow \\ 45 \div 9 = \bigcirc \end{array}$$

Help students find the missing factor using division in the following exercises:

1. $\bigcirc \times 3 = 15$

2. $\bigcirc \times 2 = 10$

3. $6 \times \bigcirc = 24$

4. $9 \times \bigcirc = 27$

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VI: ESKIMOS

FOURTH
ACTIVITY
FOR
SKILL D

Have students work the following exercises on their own.

(CONTINUED)

I. Escribe una ecuación de división para hallar el factor que falta en cada problema.

1. $6 \times \bigcirc = 30$

2. $3 \times \bigcirc = 18$

3. $4 \times \bigcirc = 16$

4. $\bigcirc \times 7 = 35$

5. $\bigcirc \times 2 = 18$

6. $7 \times \bigcirc = 21$

7. $\bigcirc \times 6 = 12$

8. $\bigcirc \times 8 = 16$

9. $4 \times \bigcirc = 12$

10. $\bigcirc \times 5 = 40$

11. $4 \times \bigcirc = 20$

12. $8 \times \bigcirc = 24$

SKILL E: Multiplication and division with tables of 6 through 9.

VOCABULARY:

array
repeated addition
product
related division
factor

"juego"
"suma repetida"
"producto"
"división relacionada"
"factor"

FIRST
ACTIVITY
FOR
SKILL E

	multiplicando por 6	Juego	Suma repetida	Producto		División relacionada
				horizontal	vertical	
6 X 1 =	6	x x x x x x	6	6 X 1 = 6	$\begin{array}{r} 6 \\ \times 1 \\ \hline 6 \end{array}$	$6 \div 6 = 1$
6 X 2 =	12	x x x x x x	$\begin{array}{r} + 6 \\ 12 \end{array}$	6 X 2 = 12	$\begin{array}{r} 6 \\ \times 2 \\ \hline 12 \end{array}$	$12 \div 6 = 2$
6 X 3 =	18	x x x x x x	$\begin{array}{r} + 6 \\ 18 \end{array}$	6 X 3 = 18	$\begin{array}{r} 6 \\ \times 3 \\ \hline 18 \end{array}$	$18 \div 6 = 3$
6 X 4 =	24	x x x x x x	$\begin{array}{r} + 6 \\ 24 \end{array}$	6 X 4 = 24	$\begin{array}{r} 6 \\ \times 4 \\ \hline 24 \end{array}$	$24 \div 6 = 4$
6 X 5 =	30	x x x x x x	$\begin{array}{r} + 6 \\ 30 \end{array}$	6 X 5 = 30	$\begin{array}{r} 6 \\ \times 5 \\ \hline 30 \end{array}$	$30 \div 6 = 5$
6 X 6 =	36	x x x x x x	$\begin{array}{r} + 6 \\ 36 \end{array}$	6 X 6 = 36	$\begin{array}{r} 6 \\ \times 6 \\ \hline 36 \end{array}$	$36 \div 6 = 6$
6 X 7 =	42	x x x x x x	$\begin{array}{r} + 6 \\ 42 \end{array}$	6 X 7 = 42	$\begin{array}{r} 6 \\ \times 7 \\ \hline 42 \end{array}$	$42 \div 6 = 7$
6 X 8 =	48	x x x x x x	$\begin{array}{r} + 6 \\ 48 \end{array}$	6 X 8 = 48	$\begin{array}{r} 6 \\ \times 8 \\ \hline 48 \end{array}$	$48 \div 6 = 8$
6 X 9 =	54	x x x x x x	$\begin{array}{r} + 6 \\ 54 \end{array}$	6 X 9 = 54	$\begin{array}{r} 6 \\ \times 9 \\ \hline 54 \end{array}$	$54 \div 6 = 9$

752

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MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VI: ESKIMOS

FIRST
ACTIVITY
FOR
SKILL E
(CONTINUED)

Prepare the Multiplying By 6 Chart on the chalkboard with the students. Help them notice what each column stands for and how one product is just 6 more than the product before or 6 less than the product after.

Make a ditto of the chart with some things missing, for the students to complete.

EXAMPLE:

$6 \times 1 = 6$
$6 \times 2 = 12$
$6 \times 3 = ?$
$6 \times 4 = ?$
$6 \times 5 = 30$
$6 \times 6 = ?$
$6 \times 7 = 42$
$6 \times 8 = ?$
$6 \times 9 = ?$

Remind students that each product is 6 more than the one before.

SECOND
ACTIVITY
FOR
SKILL E

Finish making the dot array and the multiplication/division tables for 6.
(Explained in Skill M of Unit IV.)

THIRD
ACTIVITY
FOR
SKILL E

Play "Buzz, Buzz" to the tables of 6. (Explained in Skill M of Unit IV.)

756

757

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VI: ESKIMOS

FOURTH
ACTIVITY
FOR
SKILL E

After working some of the following exercises with the students, have them complete several on their own.

I. Completa:

1. Si $6 \times 8 = 48$, entonces $48 \div 8 = \bigcirc$

2. Si $6 \times 5 = 30$, entonces $30 \div 6 = \bigcirc$

3. Si $6 \times 2 = 12$, entonces $12 \div 2 = \bigcirc$

4. Si $6 \times 9 = 54$, entonces $54 \div 6 = \bigcirc$

II. Escribe dos ecuaciones de división relacionadas para cada ecuación de multiplicación.

1. $6 \times 1 = 6$ $6 \div 1 = 6$ y $6 \div 6 = 1$

2. $6 \times 3 = 18$ _____ y _____

3. $6 \times 8 = 48$ _____ y _____

4. $6 \times 4 = 24$ _____ y _____

5. $6 \times 5 = 30$ _____ y _____

III. Escoge el producto de:

1. 2, 6 a. 8 b. 18 c. **12**

2. 9, 6 a. 15 b. 30 c. 54

3. 6, 6 a. 36 b. 12 c. 30

4. 4, 1 a. 12 b. 7 c. 6

5. 6, 7 a. 13 b. 42 c. 48

758

IV. Escribe el numeral que falta:

1. $6 \times 9 = \bigcirc$

6. $24 \div 6 = \bigcirc$

2. $36 \div 6 = \bigcirc$

7. $7 \times 6 = \bigcirc$

3. $6 \times 6 = \bigcirc$

8. $6 \div 1 = \bigcirc$

4. $18 \div 3 = \bigcirc$

9. $36 \div 6 = \bigcirc$

5. $12 \div 2 = \bigcirc$

10. $6 \times 8 = \bigcirc$

759

FOURTH ACTIVITY FOR SKILL E (CONTINUED)

V. Copia la siguiente tabla y completa los factores y productos que faltan.

Factor	Factor	Producto
6	5	?
?	8	48
6	?	36
6	?	0
?	1	6
6	4	?

760

VI. Resuelve los siguientes problemas:

- 5 tempanos
6 osos en cada tempano.
¿Cuántos osos por todo?
- 6 kayaks
1 esquimal en cada kayak.
¿Cuántos esquimales por todo?
- 6 iglues
8 esquimales en cada iglú.
¿Cuántos esquimales por todo?
- 6 trineos
7 perros en cada trineo.
¿Cuántos perros en total?
- 30 focas en grupos de 6.
¿Cuántos grupos?
- 48 pieles
8 para cada esquimal.
¿Cuántos esquimales?
- 12 colmillos
2 colmillos para cada morsa.
¿Cuántos morsas en total?
- 24 pezuñas
4 pezuñas para cada
¿Cuántos reno norteño?

761

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VI: ESKIMOS

FIFTH
ACTIVITY
FOR
SKILL E

For multiplication and division with 7, 8, 9 follow skills 1 through 4 adapting them to each table.

SIXTH
ACTIVITY
FOR
SKILL E

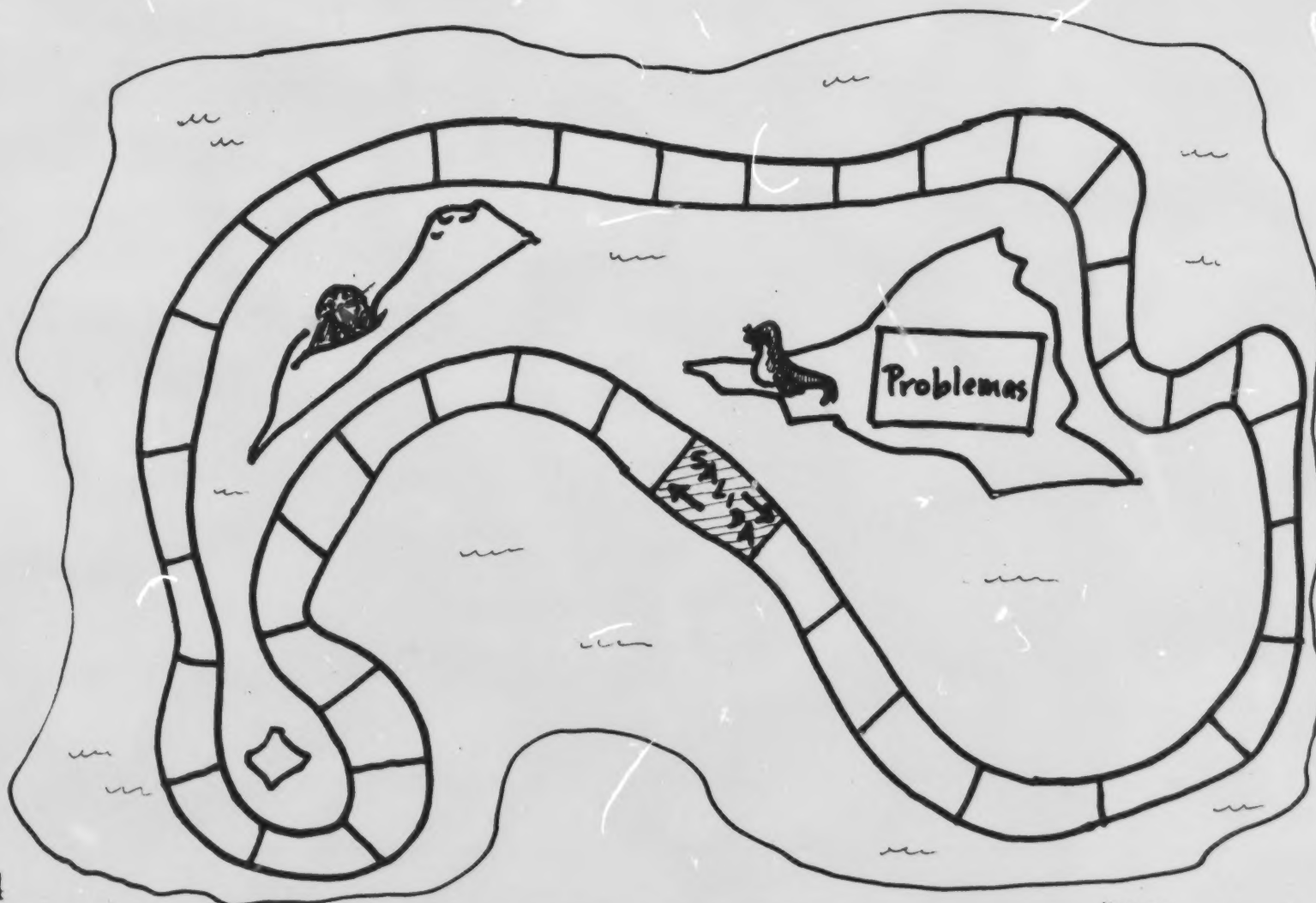
Using the complete multiplication and division tables 1 through 9, play the game, "Arreglando el dique," explained in Skill M of Unit IV.

SEVENTH
ACTIVITY
FOR
SKILL E

Using the complete multiplication and division tables 1 through 9, play the game, "Cogiendo frio en el Matterhorn," explained in Skill M of Unit IV.

**EIGHTH
ACTIVITY
FOR
SKILL E**

Copy the following gameboard on an oaktag in order to play "La Carrera de Kayaks."



764

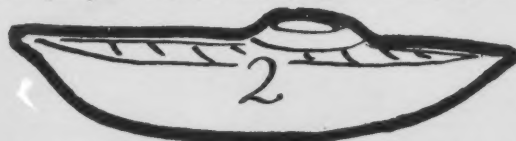
765

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VI: ESKIMOS

EIGHTH
ACTIVITY
FOR
SKILL E
(CONTINUED)

Make a Kayak for each player with different numbers on it or in different colors.



Develop a set of problem game cards to be placed face down on the game board. Some should have missing factors, products, quotients, and/or multiplication and division story problems. They should also indicate the number of moves that problem is worth.

Cards with things like; "You hit an iceberg, lose a turn" or "You had a nice seal fin dinner, move 3 extra spaces"; add variety to the game.

To play the game all players start the race on the space marked Salida in a direction agreed upon.

Each player takes his/her turn selecting a card, working the problem, and moving his/her kayak the number of spaces indicated by the card if the correct answer was given. The first player to reach the starting position after going around once, wins the game.

SKILL F: Memorizing multiplication tables through 5.

FIRST
ACTIVITY
FOR
SKILL F

Use the fact sheet system explained at the beginning of Unit II.

SECOND
ACTIVITY
FOR
SKILL F

Using flash cards with multiplication and division facts through the tables of 5 have students pair up and flash the cards to one another giving the answers as fast as possible.

768

769

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VI: ESKIMOS

SKILL G: Interpreting simple graphs.

VOCABULARY: graphs "gráficas"

FIRST
ACTIVITY
FOR
SKILL B

Read the following information about
the different animals found in
Greenland. Show the picture of
the animal as you explain.

770

Foca: Vive en el mar y en la tierra. Tiene la piel muy gruesa y es muy agil en el agua. Los esquimales usan la carne para comida, la piel para abrigo y la manteca para los lámparas.



771

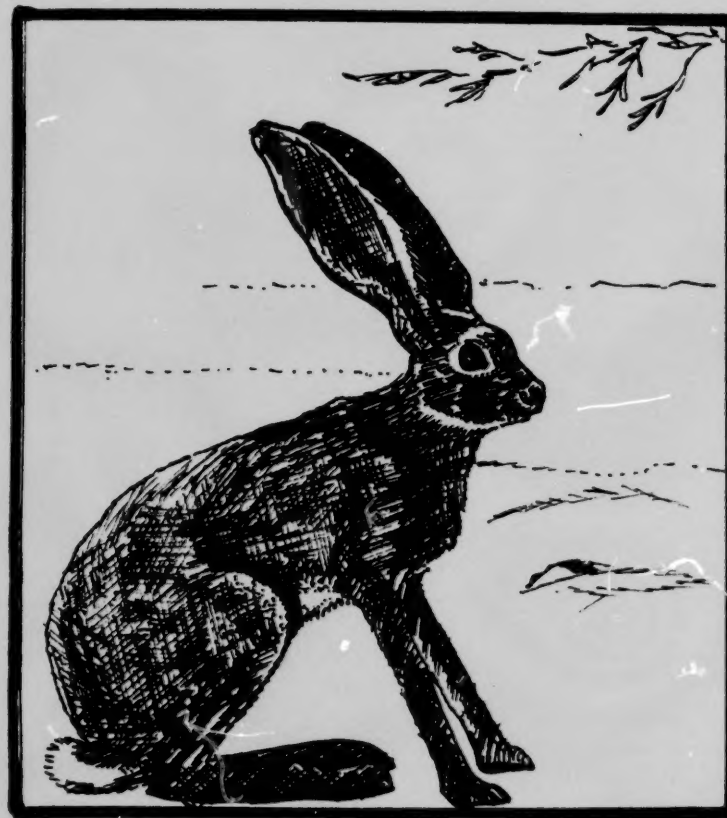
FIRST ACTIVITY FOR SKILL G (CONTINUED)

Perro (Husky): Para poder tirar del trineo, el esquimal necesita grandes perros de pelo largo y piel muy gruesa que resisten admirablemente el frío. El esquimal depende mucho de ellos para subsistir.



772

Liebre: Un animal de la misma familia del conejo pero tiene orejas y patas más largas. En las regiones Árticas su piel cambia de color dependiendo del ambiente.



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MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VI: ESKIMOS

FIRST ACTIVITY FOR SKILL G (CONTINUED)

Morsa: Un animal enorme de mar que vive en las regiones árticas. Es de la familia de las focas y tiene la piel muy gruesa y arrugada. Tiene también un par de colmillos grandes. Sirve a los esquimales de comida y abrigo.



774

Oso Polar: Un enorme oso blanco. Es muy peligroso y temido por los hombres. El esquimal que mata uno es muy respetado por todos además de haber conseguido mucha carne y piel para subsistir.



775

FIRST ACTIVITY FOR SKILL G (CONTINUED)

Reno norteño: Es una especie de reno salvaje con un formidable juego de cuernos. Le proporcionan al esquimal carne muy deliciosa.



776

Toro almizclado: Este animal proporciona al esquimal carne y piel, pero su caza es peligrosa.



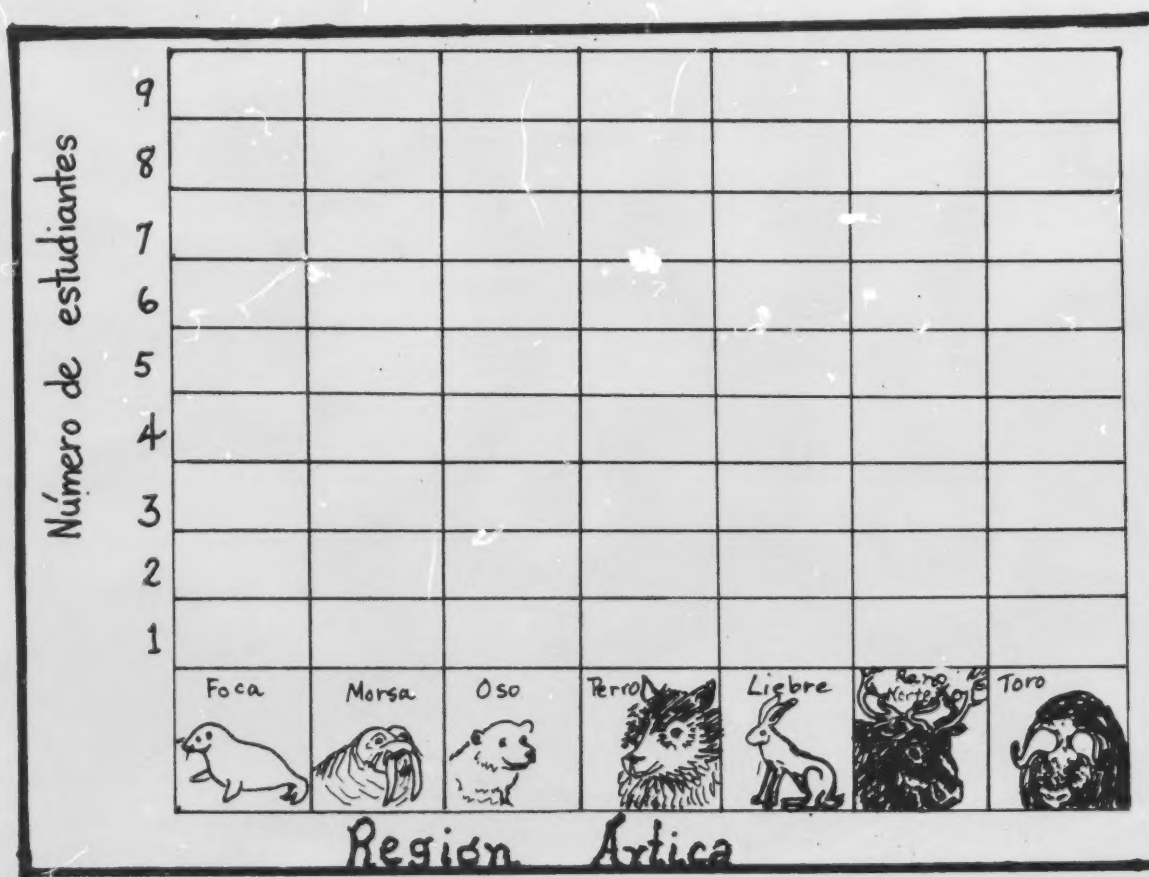
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MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VI: ESKIMOS

FIRST
ACTIVITY
FOR
SKILL G
(CONTINUED)

Prepare the following chart beforehand on a large piece of oaktag or on the chalkboard and show it to the students. Tell them that this is a special kind of picture that is going to tell a story without many words.



778

779

FIRST
ACTIVITY
FOR
SKILL G
(CONTINUED)

Give each student a pre-cut piece of paper. For example:



boys



girls

They should be a size that can fit in any of the blank spaces in the chart.

Ask the students to think which of these animals they like the most and to place their marker in the column over that animal starting on the lowest space and working up as more students make that choice.

When the graph is all set find out, through questions, what type of information or story this graph is giving them.

For example:

1. ¿Cuál animal te gustó más?
2. ¿Cuál animal te gustó menos?
3. ¿Cuál animal le gustó más a los varones?
4. ¿Cuál animal le gustó más a las niñas?
5. ¿Cuál animal no le gustó a nadie?
6. ¿Cuál animal gustó más después del primero?

This graph can be made over and over again with other questions to the students like:

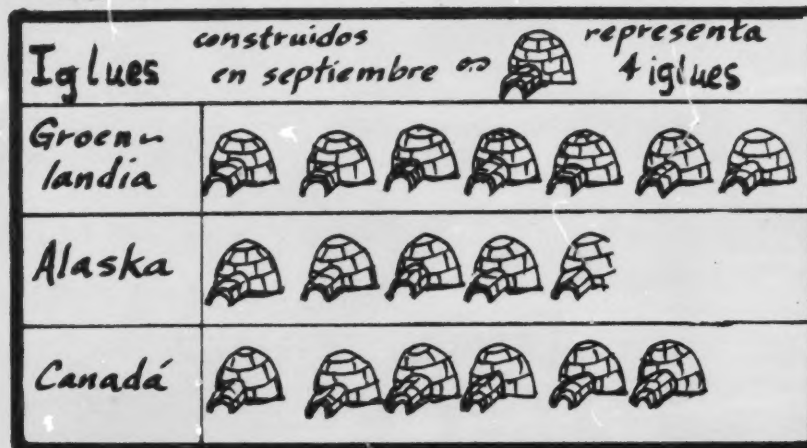
Which of these animals do you like the least?
or Which of these animals would you like to have at home?

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VI: ESKIMOS

SECOND
ACTIVITY
FOR
SKILL G

Show the following graph and find all the information you can take out of it by formulating questions.



- ¿De qué es la pictografía?
- ¿Qué países están mencionados?
- ¿Qué representa un  ?
- ¿Qué representa  ?
- ¿Cuántos iglues se construyeron en Groenlandia?
- ¿En Alaska?
- ¿En Canadá?
- ¿Cuál país construyó más iglues se construyeron en Groenlandia?
- ¿Cuál país construyó menos iglues en el mes de septiembre?
- ¿Cuántos más iglues se construyeron en Groenlandia que en Alaska?
- ¿Cuántos iglues se construyeron en Alaska y Canadá juntos?

The teacher can ask as many questions he/she desires pertinent to the graph.

Show a simple bar graph and take out all of the information possible.

THIRD
ACTIVITY
FOR
SKILL G

Have the students find graphs in newspapers or magazines and bring them to class.

Using an opaque projector each graph can be shown to all of the students and explained.

Encourage students to try to find other information that has not been mentioned.

- SKILL A: (1) Understanding the terms, fraction, numerator and denominator with their corresponding parts.
- (2) Understanding the congruency of parts in a fraction.
- SKILL B: Identifying parts of a whole in the following fractions: halves, thirds, fourths, fifths, sixths, eighths and tenths.
- SKILL C: Identifying parts of a set in fractions. Working with those fractions.
- SKILL D: Compare equivalent fractions with pictured models.
- SKILL E: Multiplying 2 digits (multiples of 10) x 1 digit with no regrouping.
- SKILL F: Multiplying 2 digits x 1 digit without regrouping.
- SKILL G: Multiplying 3 digits x 1 digit with no regrouping.
- SKILL H: Computing quotients by using the multiplication table.
- SKILL I: Filling in answer forms for standardized tests in mathematics.

- SKILL A:
- (1) Understanding the terms, fraction, numerator and denominator with their corresponding parts.
 - (2) Understanding the congruency of parts in a fraction.

VOCABULARY:	fraction	"fracción"
	numerator	"numerador"
	denominator	"denominador"
	equal parts	"partes iguales"

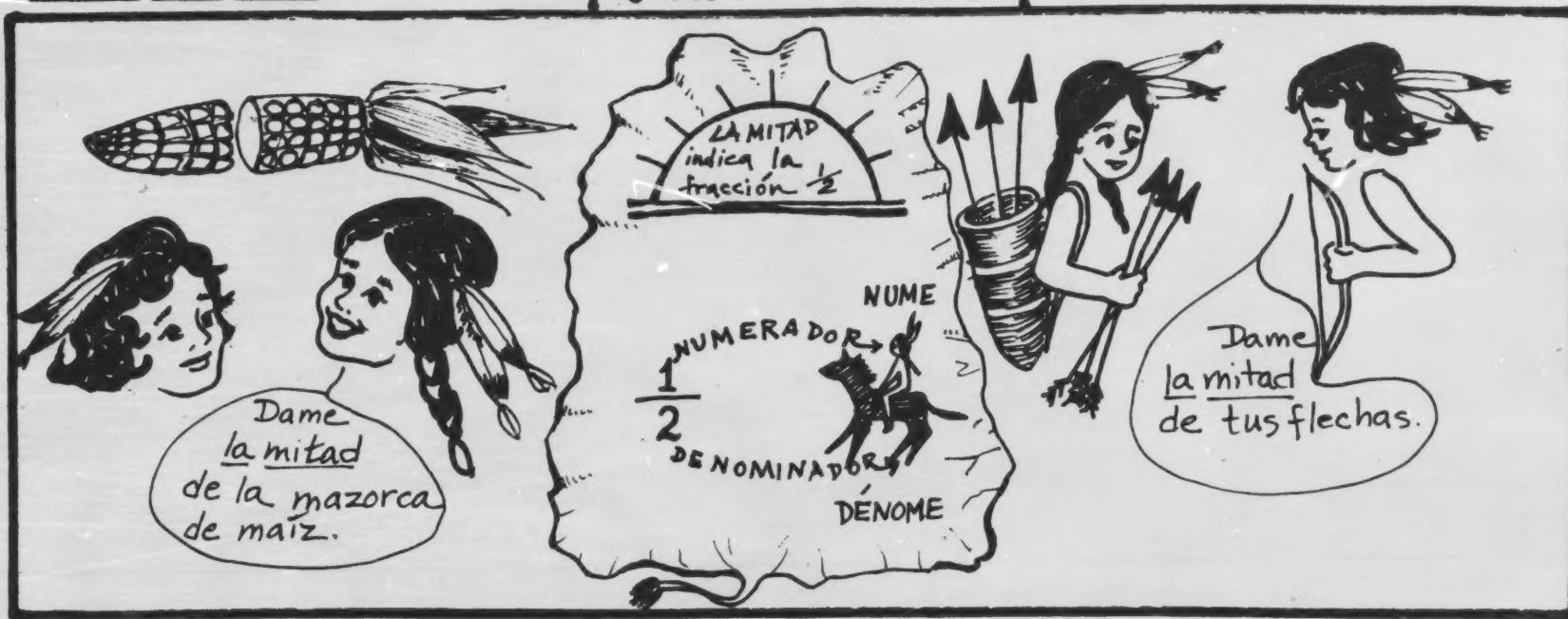
FIRST
ACTIVITY
FOR
SKILL A

Prepare a bulletin board display or ditto handout of the following which explains terms used in the study of fractions. This display can be referred to and it will help students grasp fraction concepts.

FIRST ACTIVITY FOR SKILL A (CONTINUED)

Bulletin Board Display

FRACCIONES



Using the above display, begin by having child read what the Indian boy on the left is saying to the other boy. "Dame la mitad de la mazorca de maíz." Discuss if they understand the words "la mitad." Ask if the children have ever asked for "la mitad" of something. Have them give examples. (A half of a piece of gum, candy, paper, etc.) Then discuss that "la mitad" - one-half is a fractional number that can be written $\frac{1}{2}$.

FIRST ACTIVITY FOR SKILL A (CONTINUED)

Have available a piece of candy, an apple, or something that can be cut into parts. Discuss that when you have a whole piece of candy, that is considered a whole or 1. A fractional number represents part of that whole.

Take a candy bar or an apple and cut in in half. Give one half to a student. Say, I am giving one half of the apple to Roberto. Write on the board $\frac{1}{2}$. Discuss that the numbers in a fraction have names. The 1 in $\frac{1}{2}$ is called the numerator, and the 2 is called the denominator. To help the children remember those words, point to the Indian boy on the horse. The top number of a fraction, the numerator, is just like Nume, the Indian boy, sitting on top of the horse. (NOTE: ¹ Numerator and Nume both begin with N.) Nume is sitting on a blanket which is just like the line $\frac{1}{2}$ in a fractional number. The bottom number of a fraction, the denominator, is just like Denome, the horse, who is on the bottom.

Repeat this activity cutting an apple or any physical object into quarters, sixths, eighths, etc. Give one or more parts away, writing on the chalkboard the fraction of the whole which was given away. Identify the numerator and denominator of each fraction. Make sure children understand that (1) a fraction is part of a whole, (2) how a fraction is written and (3) the names for the parts of a fraction.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VII: AMERICAN INDIANS

SECOND
ACTIVITY
FOR
SKILL A

Prepare the following type of written exercise to reinforce the previous activity.

I. Dibuja un círculo alrededor de las fracciones.

1. a. 25	b. $\frac{1}{2}$	c. 16	d. 1
2. a. $\frac{1}{4}$	b. 12	c. $\frac{1}{5}$	d. 5
3. a. $\frac{1}{5}$	b. $\frac{2}{3}$	c. 19	d. $\frac{3}{8}$
4. a. $\frac{1}{3}$	b. $\frac{1}{6}$	c. $\frac{2}{6}$	d. $\frac{3}{10}$

II. Escribe el numerador de cada fracción.

- a. $\frac{1}{2}$ numerador ____ b. $\frac{3}{4}$ numerador ____ c. $\frac{6}{8}$ numerador ____ d. $\frac{2}{8}$ numerador ____

III. Escribe el denominador de cada fracción.

- a. $\frac{1}{6}$ denominador ____ b. $\frac{2}{5}$ denominador ____ c. $\frac{3}{8}$ denominador ____ d. $\frac{1}{3}$ denominador ____

THIRD
ACTIVITY
FOR
SKILL A

To show that fractions are based on congruency of parts.

With the children, make an equilateral triangle and call it a teepee. Fold the triangle in half so it has two equal parts.  Cut the triangle along the fold. Ask what fraction each part of the triangle is. (They should say $\frac{1}{2}$.)

Ask if the two cut pieces are equal. Put one piece on top of another. (They should say yes.) Then take another equilateral triangle and fold and cut it off-center.  Ask if the two cut pieces are equal and $\frac{1}{2}$ of the former whole triangle. (Children should see that they are not.)

Discuss that in order to have $\frac{1}{2}$ of the triangle, the triangle must be folded so that it has 2 equal parts. Expand the discussion so that in order to have $\frac{1}{2}$ of any object or objects, the object must be divided, separated, folded and cut into two equal parts.

Repeat this same activity and discussion with a long rectangular shaped piece of paper.  You can call it a Long House. Fold the paper in quarters.  Discuss that in order to have $\frac{1}{4}$ of an object, the object must have 4 equal parts.

Repeat this folding activity with sixths, eighths and as many other examples as necessary to help children understand that fractions are based on congruency (equal) of parts.

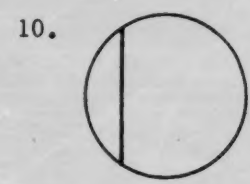
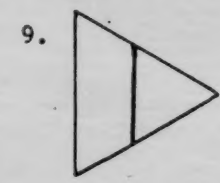
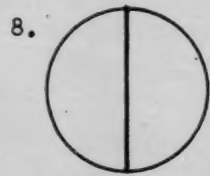
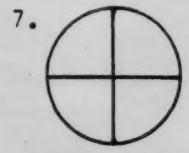
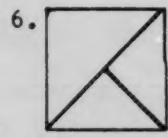
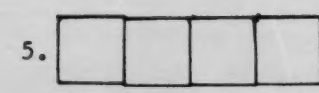
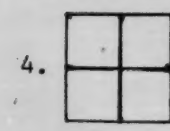
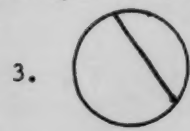
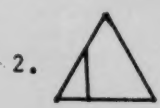
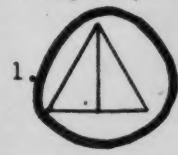
As you are doing these activities, write on the board:

$\frac{1}{2}$	quiere decir	$\frac{1}{2}$ de	$\frac{1}{4}$	quiere decir	$\frac{1}{4}$ de	
		2 partes iguales			4 partes iguales	etc. . .

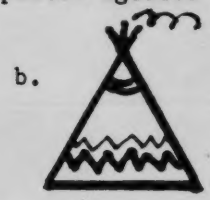
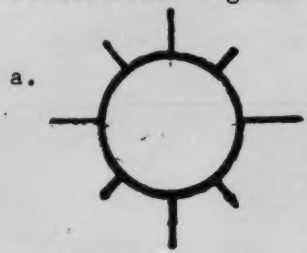
To reinforce this skill, prepare a worksheet with the following type of exercises.

THIRD ACTIVITY FOR SKILL A (CONTINUED)

I. Dibuja un círculo alrededor de cada figura que tiene partes iguales.



II. Divide estas figuras en partes iguales usando líneas.



SKILL B: Identifying parts of a whole in the following fractions: halves, thirds, fourths, fifths, sixths, eighths and tenths.

VOCABULARY:

whole	"entero"
half	"mitad"
third	"tercio"
fourth	"cuarto"
fifth	"quinto"
sixth	"sexto"
eighth	"octavo"
tenth	"décimo"

INTRODUCTION

In presenting fractions as parts of a whole, three things will be done concurrently with each fraction.

1. The fraction will be introduced using a circular or square shaped figure.
2. An Indian drum will be made of each fraction.
3. A fraction strip chart will be made to be displayed throughout the study of fractions.

FIRST
ACTIVITY
FOR
SKILL B

Prepare paper squares and circles to concretely show all of the fractions to be studied. As each fraction is presented, fill in the following chalkboard chart under the headings.

Example:	<u>Ves</u>	<u>Piensa así</u>	<u>Lee</u>	<u>Escribe</u>
		1 parte roja 2 partes iguales	La mitad es roja	$\frac{1}{2}$

Present a paper square in which one half is red and one half is white. Ask how many parts are red. Ask how many equal parts there are. Fill in the "Piensa así."

FIRST ACTIVITY FOR SKILL B (CONTINUED)

Discuss and fill in the "Lee" part, reviewing the term, "mitad." Fill in the "Escribe" showing how the fraction one-half is written. Repeat this exercise with other shapes showing halves.

Begin making the Fraction Strip Chart. This can easily be made out of poster board with different colored strips being pasted to the poster board. First, review and show a "whole" or "1." Then, make 2 one-half strips that will equal the whole and paste them underneath the whole. Label each section as $\frac{1}{2}$. (Children will be able to see how the two equal congruent parts equal a whole.)

1 (WHOLE)	
$\frac{1}{2}$	$\frac{1}{2}$

Ask how many halves do they need to make a whole. (2)

Show how to write "2 halves" in a fraction. $\left(\frac{2}{2}\right)$

FIRST ACTIVITY FOR SKILL B (CONTINUED)

MAKE FRACTION DRUMS



Using coffee cans or fruit punch cans, make Indian tom-toms. Open one end of the can. On the other can end, using magic markers or paint, color in $\frac{1}{2}$ of the can top. With glue and construction paper, cover and decorate the rest of the can, making sure to keep the top with the fraction exposed. A drum could be made for each fraction. Each child should be able to make his/her own drum. Later, the drums can be played together in Fraction Tom-Tom Activities.

Repeat this same series of activities (figure drawings, drums and the fraction strip chart) for each of the fractions to be introduced. Help the students discover the relation of parts to the whole as in thirds: How many thirds are there in a whole (3 thirds, or $\frac{3}{3}$) and fourths: How many fourths are there in a whole (4 fourths, or $\frac{4}{4}$, etc).

THIRDS: $\frac{1}{3}$ $\frac{2}{3}$ $\frac{3}{3}$



FIFTHS: $\frac{1}{5}$ $\frac{2}{5}$ $\frac{3}{5}$ $\frac{4}{5}$ $\frac{5}{5}$



EIGHTHS: $\frac{1}{8}$ $\frac{2}{8}$ $\frac{3}{8}$ $\frac{4}{8}$ $\frac{5}{8}$ $\frac{6}{8}$ $\frac{7}{8}$ $\frac{8}{8}$



The teacher should determine how many drums are to be made.

FOURTHS: $\frac{1}{4}$ $\frac{2}{4}$ $\frac{3}{4}$ $\frac{4}{4}$



SIXTHS: $\frac{1}{6}$ $\frac{2}{6}$ $\frac{3}{6}$ $\frac{4}{6}$ $\frac{5}{6}$ $\frac{6}{6}$

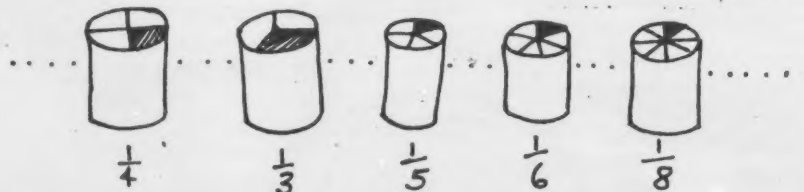


TENTHS: $\frac{1}{10}$ $\frac{2}{10}$ $\frac{3}{10}$ $\frac{4}{10}$ $\frac{5}{10}$ $\frac{6}{10}$ $\frac{7}{10}$ $\frac{8}{10}$ $\frac{9}{10}$ $\frac{10}{10}$



The Indian Tom-Toms.

Indian Designs can be drawn or painted on the sides.



SECOND
ACTIVITY
FOR
SKILL B

Indian Tom-Tom Activities: Do these activities sitting in a circle with the children sitting cross-legged and the tom-toms placed between their legs.

1. Flash Card Beat: The teacher should make flash cards with all the fractions to be studied.

$$\boxed{\frac{1}{2}} \dots \boxed{\frac{1}{3}} \dots \boxed{\frac{1}{4}} \dots \boxed{\frac{3}{4}} \dots \text{etc.}$$

When the teacher flashes the card, the child with the tom-tom of that fraction should tap his/her tom-tom once. The flashcards should be mixed up in random order to keep the students on their toes. The faster the teacher flashes the cards, the more fun.

Game extension: Present fractions not on the cans. For example, present a flash card of $\frac{3}{4}$. The child whose drum is $\frac{1}{4}$ should then tap his drum 3 times. If $\frac{4}{7}$ is presented, then the child with the fraction drum $\frac{1}{7}$, should tap his drum 4 times. And so on. . .

2. Accent the Numerator Beat: The students really have to be "on their toes" to play this beat. All the children will be playing together in this beat. The beat will be tapped out in sets of beats. Flash cards will be shown to determine the beat. The key to this beat is that the numerator in the fraction will be tapped louder, (given an accent) than the rest of the taps in the set. The number of taps in the set will be determined by the denominator in the fraction.

For example, if the fraction $\frac{1}{4}$ is flashed on the flash card, then a set of 4 taps will be tapped out. But the first tap, which represents the numerator, will be tapped louder. The taps would be like this:

Hard, Soft, Soft, Soft/ This would be continued as long as the flash card $\frac{1}{4}$ was shown.

$$\boxed{\frac{1}{4}} =$$

1 1 1 1
beat beat beat beat (End of one set.)

4 beats

Hard, Soft, Soft, Soft, Soft, Soft/Hard, Soft, Soft, Soft, Soft, Soft, etc. . .

$$\boxed{\frac{1}{6}} =$$

6 beats

Hard, Hard, Hard, Soft/Hard, Hard, Hard, Soft/Hard, Hard, Hard, Soft, etc. . .

$$\boxed{\frac{3}{4}} =$$

4 beats

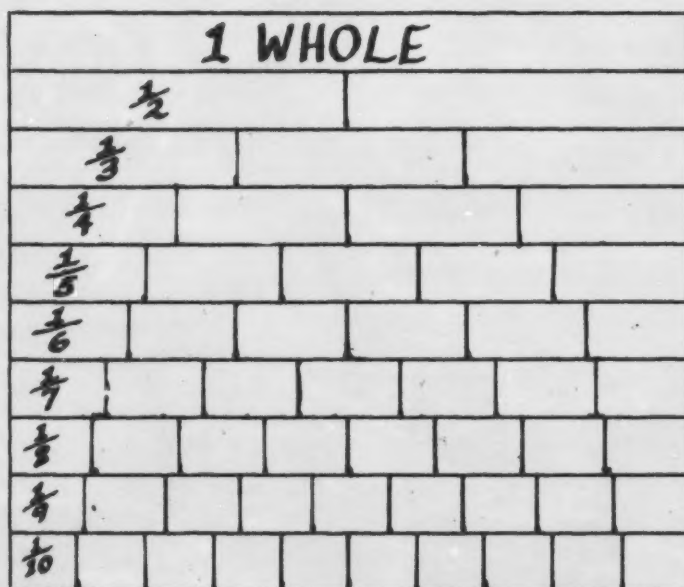
SECOND ACTIVITY FOR SKILL B (CONTINUED)

The teacher can use as many fractions as desired, but remember, when a fraction on a flash card is shown, the denominator determines the number of taps in the set, and the numerator determines how many of the taps will be accented.

3. Big to small; small to big: Tap out the fractions starting with the biggest fraction ($\frac{1}{2}$), and going to the smallest fraction ($\frac{1}{10}$). Then, reverse the order.

THIRD
ACTIVITY
FOR
SKILL B

The finished fraction strip chart to be made and displayed would appear as below:



NOTE: This chart is very useful because it shows the relationships of all the fractions with 1 (Whole) and the relationship of one fraction to another. It also shows fractions as based on congruency of parts.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VII: AMERICAN INDIANS

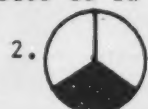
FOURTH
ACTIVITY
FOR
SKILL B

As each fraction or group of fractions is presented, written exercise sheets should be prepared to reinforce and test the learning of each fraction. Example exercises are shown below.

I. Dibuja un círculo alrededor de la fracción correcta para cada figura.



$\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$



$\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$



$\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$



$\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{5}$

II. Escribe la fracción para cada dibujo.



$\frac{2}{3}$

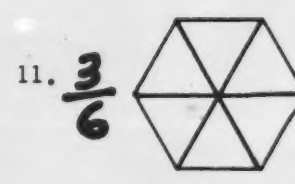
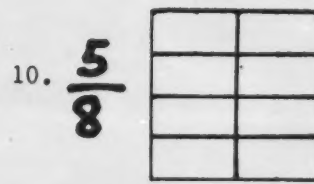
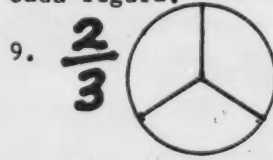
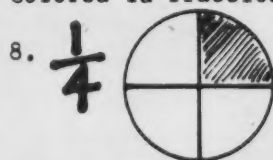


$\frac{3}{8}$



$\frac{1}{2}$

III. Colorea la fracción para cada figura.



IV. Estudia las figuras y contesta.

12. ¿Cuál es más? $\frac{1}{2}$ o $\frac{1}{3}$

14. ¿Cuál es menos? $\frac{1}{2}$ o $\frac{1}{8}$

13. ¿Cuál es más? $\frac{1}{4}$ o $\frac{1}{6}$

15. ¿Cuál es menos? $\frac{1}{6}$ o $\frac{1}{3}$

810

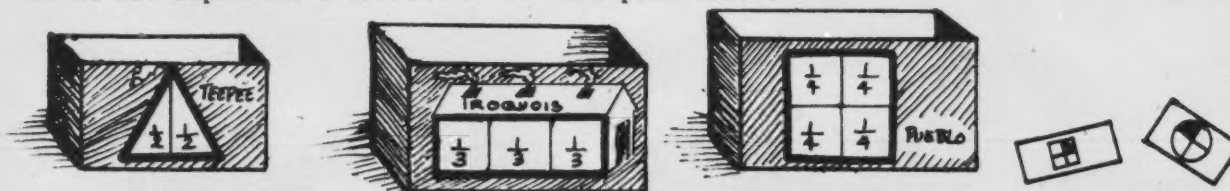


811

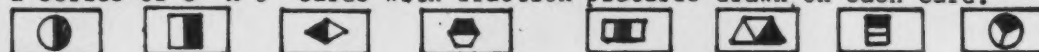
FIFTH
ACTIVITY
FOR
SKILL B

The following fun activities can be used to reinforce the learning of fraction concepts.

1. "Viviendas de los indios" - Prepare several shoe boxes (or other containers) with pictures of Indian dwellings drawn or attached to each shoe box. Draw each dwelling so it can represent a fraction. See examples below:



Prepare a series of 3" x 5" cards with fraction pictures drawn on each card.

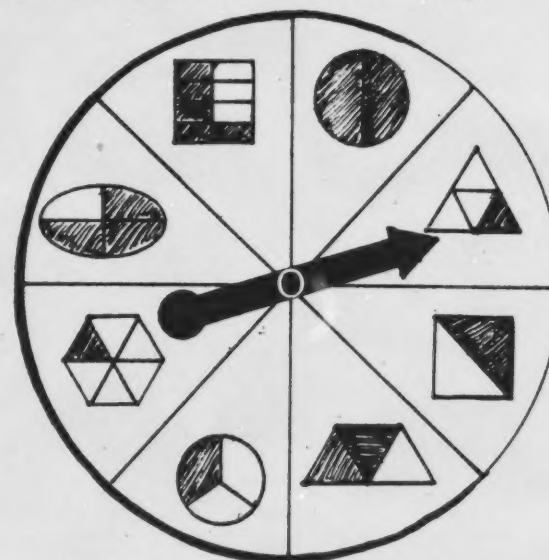


Have children sort the cards correctly and place the cards in each Indian dwelling.
Children can check one another.

	$\frac{1}{2}$
	$\frac{1}{3}$
	$\frac{1}{4}$
	$\frac{1}{6}$
	$\frac{5}{8}$
	$\frac{3}{4}$
	$\frac{2}{3}$
	$\frac{2}{2}$

2. Name the Fraction (Nombra la fracción)

Prepare a disc with a spinner as shown:
Draw figures representing different fractions. Spin the spinner and name the fraction. Make a self-checking card to accompany the spinner (or write the fraction name on the reverse side of the spinner behind the corresponding figure).



FIFTH ACTIVITY FOR SKILL B (CONTINUED)3. Fraction Bingo

This Bingo Game is played just like the previous Bingo Games have been played.

- A. Write the fractions to be reinforced on the chalkboard. (At least 12.)
- B. Distribute a blank Bingo Sheet to each child and have them fill in the Sheet with the fractions written previously on the chalkboard.

$\frac{1}{3}$	$\frac{2}{4}$	$\frac{1}{8}$	$\frac{1}{4}$
$\frac{1}{5}$	$\frac{2}{3}$	$\frac{3}{4}$	$\frac{2}{5}$
$\frac{3}{4}$	$\frac{1}{2}$	$\frac{2}{8}$	$\frac{3}{5}$
$\frac{2}{2}$	$\frac{5}{5}$	$\frac{4}{4}$	$\frac{3}{3}$

- C. Prepare a set of cards with pictures representing each fraction.



- D. As each picture is shown, students cover the fraction which the shaded part represents.

- E. First player to cover four spaces in a row is the winner.

SKILL C: Identifying parts of a set in fractions. Working with those fractions.

VOCABULARY:

fraction
fractional part
of a set

"fracción"
"parte fraccionaria
de un conjunto"

FIRST
ACTIVITY
FOR
SKILL C

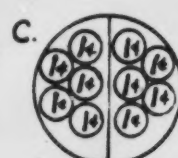
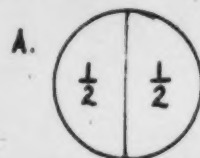
To introduce identifying parts of a set in fractions, call two children to the front of the room and give one child 2 nickels (10¢). Have the child without the money ask the other child for half of his/her money. (Dame la mitad de tu dinero.) Ask the rest of the class how much is $\frac{1}{2}$ of the money. They should respond 1 nickel or 5¢.

Call two more children to the front and give one child 10 pennies (10¢). Have the child without the money ask the other child for $\frac{1}{2}$ of his/her money. Ask the rest of the class how much is $\frac{1}{2}$ of 10 pennies. They should respond 5 pennies or 5¢.

Write on the chalkboard, $\frac{1}{2}$ de 10 centavos = 5¢.

Discuss how 5 pennies and 1 nickel are both $\frac{1}{2}$ of 10 cents.

Draw 3 circles as shown below on the chalkboard. Divide the circles in half. Discuss how Circle A is divided into 2 halves. Discuss how Circle B shows 2 nickels (10¢). Discuss how Circle C shows 10 pennies divided into halves. Discuss how the halves in each whole are congruent.



816

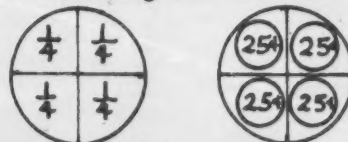
817

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VII: AMERICAN INDIANS

FIRST ACTIVITY FOR SKILL C (CONTINUED)

Repeat this same activity with 4 quarters asking how much is $\frac{1}{4}$ of 4 quarters. Repeat the discussion with the circles.



Discuss how the quarters or fourths are congruent, relating fractions as parts of a whole with parts of a set. (NOTE: Money is used to introduce parts of a set in fractions because it is in the realm of the children's experience.)

Next, continue presenting parts of a set in fractions using colored beads. Explain how Indians traded furs to European settlers for beads. Also explain or show pictures of Indian articles made with beads.

Present 5 beads using the following format. Ask the question: ¿Qué parte de cada conjunto es negra?

<u>VES</u>	<u>PIENSA ASI</u>	<u>LEE</u>	<u>ESCRIBE</u>
	3 bolitas negras 5 bolitas por todo	tres quintos del conjunto son negras	$\frac{3}{5}$

Discuss how $\frac{3}{5}$ of the beads are black.

Present another example:

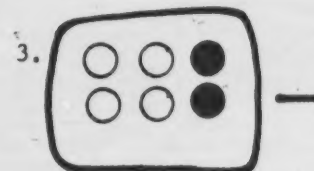
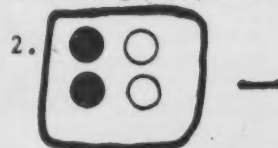
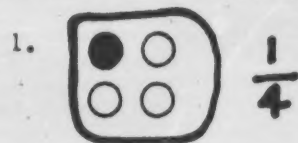
	2 bolitas negras 6 bolitas por todo	Dos sextos del conjunto son negras	$\frac{2}{6}$
--	--	---------------------------------------	---------------

Repeat with other examples, introducing the other previously introduced fractions.

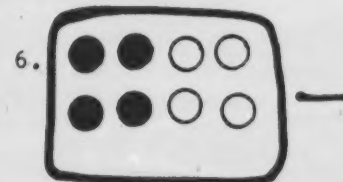
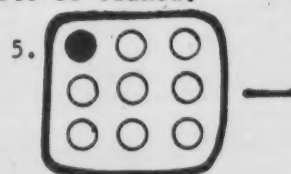
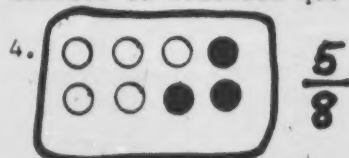
SECOND
ACTIVITY
FOR
SKILL C

Prepare the following type of activity to reinforce identifying parts of a set in fractions.

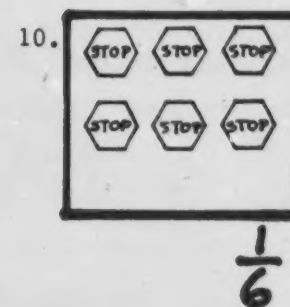
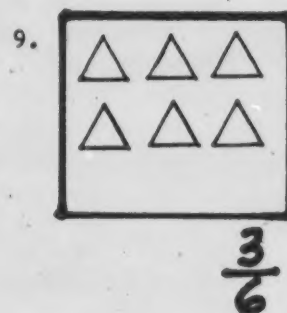
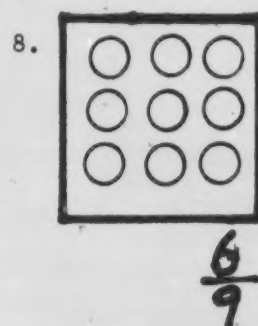
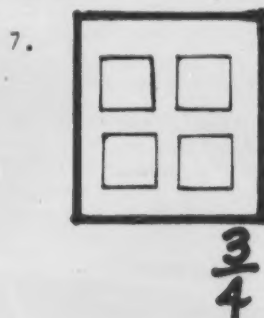
I. Escribe la fracción que indica que parte es negra en cada conjunto.



II. Escribe la fracción que indica qué parte es blanca.



III. Colorea los objetos de acuerdo a la fracción indicada.



MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VII: AMERICAN INDIANS

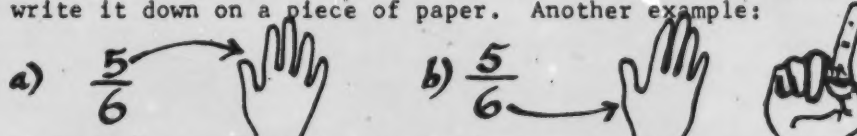
THIRD
ACTIVITY
FOR
SKILL CSign Language - Pantomime Activities for further practice using fractions.

Discuss how Indians used sign language to communicate with other tribes and with the White Man in the past.

1. Guess the fraction: The teacher or student leader should give a fraction using his/her fingers. For example, to show $\frac{2}{5}$, make two signs using your fingers.



Have the children raise their hands and recite the fraction, or write it down on a piece of paper. Another example:



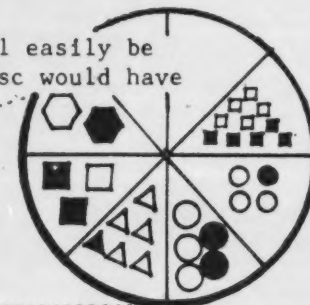
A circle game can be played in which the player who correctly guesses the given fraction has the opportunity to present the next fraction.

2. Using Pantomime with fractions: Have children make up sentences (directions) using pantomime and fractions. For example, pantomime " $\frac{1}{4}$ of the class line up against the chalkboard." Or, "at 2:00, $\frac{1}{5}$ of the class (if the class is sitting in 5 rows of desks) may get a drink of water."

A lot of fun can be had with this activity.

FOURTH
ACTIVITY
FOR
SKILL C

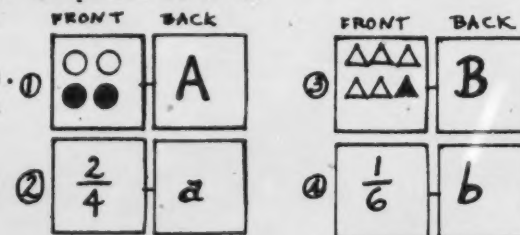
The activities presented in the Fifth Activity for Skill B (Unit VII) can all easily be adapted to practice fractions as part of a set. New game cards and a new disc would have to be made. The card showing $\frac{1}{2}$ might appear like this.  The disc sections for the Name the Fraction would appear like this.



FIFTH
ACTIVITY
FOR
SKILL C

Concentration Matching Game

Two sets of cards must be made. One set would show fractions as parts of sets and the other would have fractional numbers written on them. Letters should be written on the back of each set of cards. To play, children must match the pictures with the fractions. The game can be played individually or in teams with a small group. The player or team with the most matched pairs is the winner.



① and ② are matching pair.
③ and ④ are matching pair.

SIXTH
ACTIVITY
FOR
SKILL C

Draw a Class Mural

Draw a mural of an Indian village. Include fractions in the directions. For example, in the case of a Plains Indian village:

1. Make $\frac{1}{2}$ of the horses brown.
2. Make $\frac{1}{3}$ of the Indians children.
3. Make $\frac{5}{8}$ of the Tee-Pees black and red.
4. Half ($\frac{1}{2}$) of the male Indians should have bows and arrows.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VII: AMERICAN INDIANS

SKILL D: Compare equivalent fractions with pictured models.

VOCABULARY: equivalent fractions
"fracciones equivalentes"

FIRST
ACTIVITY
FOR
SKILL D

The Fraction Strip Chart will be very useful in providing a visual example in teaching this skill. Draw three circles on the chalkboard.

A.



B.



C.



Ask a child to come to the chalkboard and shade in $\frac{1}{2}$ of Circle A.



Ask another child to shade in $\frac{2}{4}$ of Circle B.



Ask another child to shade in $\frac{4}{8}$ of Circle C.



Discuss that $\frac{1}{2}$ of each circle has been shaded in. Ask the question: Are $\frac{1}{2}$, $\frac{2}{4}$ and $\frac{4}{8}$ names for the same number? Discuss how the 3 fractions are equivalent. Write on the board:

826

$$\frac{1}{2} = \frac{2}{4}$$

cierto
falso

$$\frac{1}{2} = \frac{4}{8}$$

cierto
falso

$$\frac{2}{4} = \frac{4}{8}$$

cierto
falso

827

FIRST
ACTIVITY
FOR
SKILL D
(CONTINUED)

Let the children answer and discuss each equation.

Repeat this activity with other examples until the students understand that equivalent fractions name the same number.

SECOND
ACTIVITY
FOR
SKILL D

Prepare a worksheet to reinforce the learning of this skill.

I. Completa cada ecuación. Mira los dibujos.

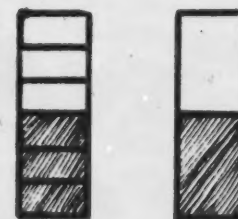
1. $\frac{4}{8} = \frac{1}{2}$



2. $\frac{\square}{3} = \frac{\square}{6}$



3. $\frac{\square}{6} = \frac{\square}{2}$



4.

$\frac{\square}{6} = \frac{\square}{3}$



5.

$\frac{\square}{4} = \frac{\square}{8}$



MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VII: AMERICAN INDIANS

SKILL E: Multiplying 2 digits (multiples of 10) x 1 digit with no regrouping.

**FIRST
ACTIVITY
FOR
SKILL E**

Have ten dimes available.

Ask the class how many cents there are in 4 dimes. Ask how they figured out the answer. (They will most likely say by adding and by multiplying.)

Write on the chalkboard: $10 \times 4 = \square$ $10 + 10 + 10 + 10 = \square$

$\nwarrow$ $\nwarrow$
 number of number of
 cents in dimes
 a dime

Children should be able to answer:

Review the horizontal and vertical way of writing 10 times 4: $10 \times 4 = \square$

$\begin{array}{r} 10 \\ \times 4 \\ \hline \end{array}$

Ask how many cents there are in 1 dime, in 2 dimes, in 3 dimes. . . until 9 dimes. Write the multiplication equations to solve these questions on the chalkboard.

FIRST ACTIVITY FOR SKILL E (CONTINUED)

Write the following equations on the chalkboard multiplying tens so that a pattern is seen.

$$10c \times 1 = 10c$$

$$10c \times 2 = 20c$$

$$10c \times 3 = 30c$$

$$10c \times 4 = 40c$$

$$10c \times 5 = 50c$$

$$10c \times 6 = 60c$$

$$10c \times 7 = 70c$$

$$10c \times 8 = 80c$$

$$10c \times 9 = 90c$$

Using the "dimes" example, explain and discuss the "Two Rules of Thumb."

TWO RULES OF THUMB (or little tricks to help children remember)

1. Tens have 1 zero.

NOTE: Explain that dimes are just like tens, and all tens have 1 zero.

EXAMPLE: 3 tens = 30

1 zero.

2. Whenever multiplying a ten or multiple of ten in a horizontal equation,

$$10 \times 6 = 60$$

multiply the 2 numbers, ($1 \times 6 = 6$) and then add on the zero.

OR

$$30 \times 3 = 90$$

Multiply the 2 numbers ($3 \times 3 = 9$) and then add the zero.

FIRST ACTIVITY FOR SKILL E (CONTINUED)

Explain the "dimes" activity to other multiplies of 10, showing how the Two Rules of Thumb can be applied.

Write: 20×3 on the chalkboard.

$$20 \times 3 = \boxed{60}$$

Remember multiply the 2 numbers ($2 \times 3 = 6$) and then add the zero. Also, remember tens have 1 zero.

Give other examples:

$$30 \times 4 = \boxed{120}$$

Multiply the 2 numbers ($3 \times 4 = 12$) and then add the zero.

Remind the students that $90 \times 8 = \boxed{}$ and 90 are the same thing. Show both forms when giving examples.

Another example:

$$90 \times 8 = \boxed{720}$$

Multiply the 2 numbers ($9 \times 8 = 72$) and then add the zero.

REPEAT with as many examples as needed.

SECOND
ACTIVITY
FOR
SKILL E

Example practice worksheet.

Multiplica.

1. $10 \times 3 = \square$

2. $10 \times 7 = \square$

3. $20 \times 2 = \square$

4. $30 \times 2 = \square$

5. $40 \times 3 = \square$

6. $50 \times 5 = \square$

7. $60 \times 4 = \square$

8. $70 \times 3 = \square$

9. $90 \times 9 = \square$

10. $70 \times 8 = \square$

11. $\begin{array}{r} 10 \\ \times 4 \\ \hline \end{array}$

12. $\begin{array}{r} 20 \\ \times 4 \\ \hline \end{array}$

13. $\begin{array}{r} 60 \\ \times 5 \\ \hline \end{array}$

14. $\begin{array}{r} 30 \\ \times 5 \\ \hline \end{array}$

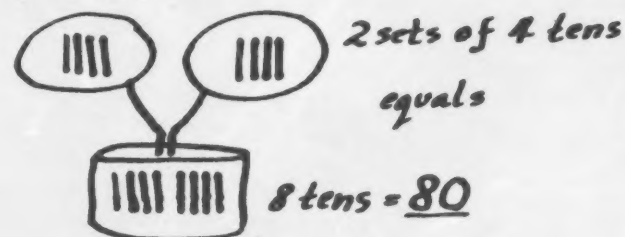
THIRD
ACTIVITY
FOR
SKILL E

Multiplying 2 digits (multiples of 10) times 1 digit can be visually shown using the Base Ten Symbols used in previous units. If some students are having difficulty conceptualizing this skill, this visualization might be helpful.

REMEMBER $1 = 10$. So, $40 \times 2 = \square$ would be shown as below.

$|||| = 40$

OR
 $\begin{array}{r} 40 \\ \times 2 \\ \hline 80 \end{array}$



NOTE: This is multiplication as repeated addition.

SEE OTHER EXAMPLES ON NEXT PAGE.

MATHEMATICS CURRICULUM FOR GRADE THREE

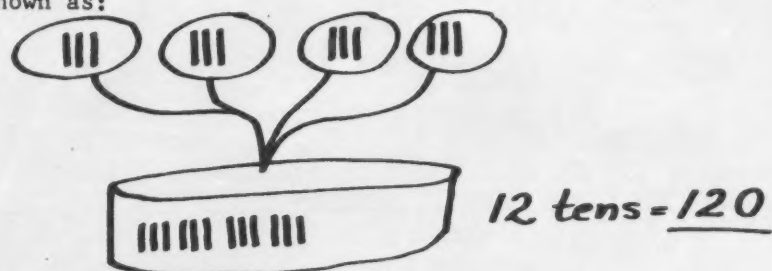
UNIT VII: AMERICAN INDIANS

THIRD ACTIVITY FOR SKILL E (CONTINUED)

$$\begin{array}{r} 30 \\ \times 4 \\ \hline \end{array}$$

or $30 \times 4 = \square$

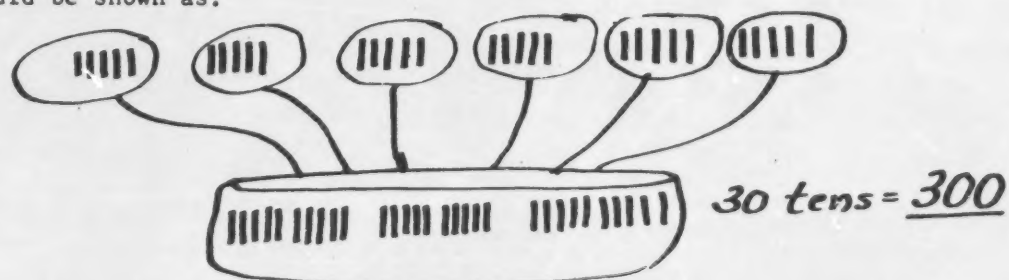
would be shown as:



$$\begin{array}{r} 50 \\ \times 6 \\ \hline \end{array}$$

or $50 \times 6 = \square$

would be shown as:



NOTE: These visualizations can be done on the chalkboard or put on a ditto sheet.

FOURTH
ACTIVITY
FOR
SKILL E

Word problems involving the multiplication of 2 digits (multiples of 10) times 1 digit should be presented, discussed and solved.

Resuelve.

1. José tiene 6 vellones de 10c. ¿Cuántos centavos tiene por todo?
2. Maria compró 3 dulces que cuestan 20c cada uno. ¿Cuánto gastó por todo?
3. Un paquete de papel cuesta 40c. Roberto compró 2 paquetes. ¿Cuánto gastó por todo?
4. Hay 4 salones con 30 niños en cada uno. ¿Cuántos niños hay por todo?

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VII: AMERICAN INDIANS

FIFTH ACTIVITY FOR SKILL EShoot the Buffalo

Before playing, discuss how the Plains Indians were great buffalo hunters. Discuss how they used every part of the buffalo to meet their needs and that they only killed as many buffalos as they needed.

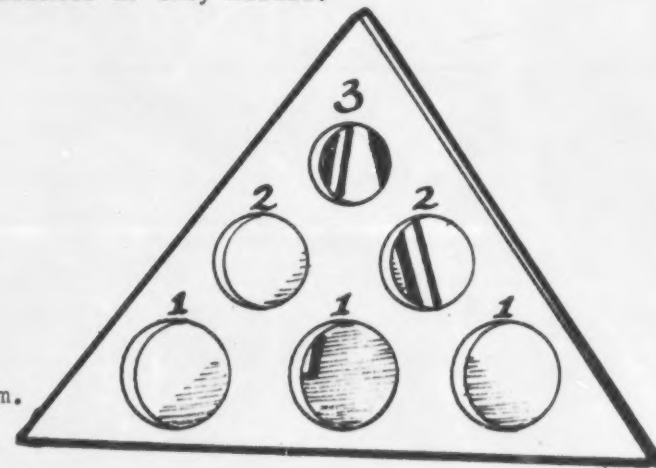
Prepare a bean bag type of game board as shown below.



Also, prepare 10-20 2" x 2" cards with multiplies of 10 written on them.

10 **20** **30** **40**

Place these cards in a shoe box.



To play, each player for each turn tosses 4 bean bags at the game board. Each time a player tosses a bean bag through a hole the player has shot the number of buffalos that appears above each hole. After 4 tosses, the player adds up the number of buffalos shot, and without looking, draws a number card out of the shoe box. He/she then multiplies the number on the card times the number of buffalos shot to determine his/her score for that turn.

For example, if a player shoots 4 buffalos and draws out the card **30**, to determine his/her score, the player would multiply $30 \times 4 = \square$. The score for that turn would be 120. The game may be played by pairs or small teams. The player with the most points at the end of the game is the winner. If a player fails to multiply correctly no points are given.

SKILL F: Multiplying 2 digits times
1 digit without regrouping.

VOCABULARY: long way "método largo"
short way "método corto"

FIRST
ACTIVITY
FOR
SKILL F

Introduce multiplying 2 digits by 1 digit by visually showing various problems with the Base Ten Symbols. Remember, ||||| = 10 (ten) and $\bullet$ = 1 (one).

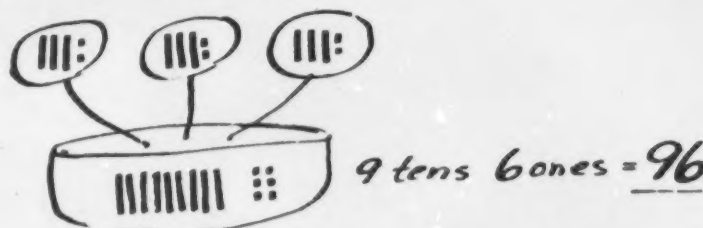
For example: $\begin{array}{r} 32 \\ \times 3 \end{array}$ would be shown as:

First the ones would be counted (6).
Then the tens would be counted (9).

This process is really nothing more
than multiplication as repeated
addition. $\begin{array}{r} 32 \\ +32 \end{array}$ Explain and discuss.

$$\begin{array}{r} 32 \\ +32 \\ \hline \end{array}$$

Present other examples.



MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VII: AMERICAN INDIANS

SECOND
ACTIVITY
FOR
SKILL F

Multiplying using "el metodo largo" (the long way).

Write the problem $\begin{array}{r} 43 \\ \times 2 \\ \hline \end{array}$ on the chalkboard. Discuss with the children that when multiplying this type of problem, the 2 will be multiplied times the ones digit (3) first and then times the tens digit (4) second.

Next, examine the number 43. Ask what each digit in 43 signifies. Children should respond that the 4 = 4 tens (40) and the 3 = 3 ones (3). Remind the students that tens have 1 zero.

Return to the problem on the board. Explain that they are going to learn the "metodo largo." So when multiplying "las unidades," (2×3) they are going to write that product here. When multiplying "las decenas," (2×40) they will write that product here.

Note: Remember 4 tens = 40

$$\begin{array}{r} 43 \\ \times 2 \\ \hline \end{array}$$

$2 \times 3 =$
unidades
 $2 \times 40 =$
decenas

To make this simpler,
write each step to
the side here.

$$\begin{array}{r} 43 \\ \times 2 \\ \hline 6 \\ +80 \\ \hline 86 \end{array}$$

$2 \times 3 = 6$
 $2 \times 40 = 80$

Each partial product should be added, and the problem is solved.

SECOND ACTIVITY FOR SKILL F (CONTINUED)

IMPORTANT THINGS TO REMEMBER:

1. When multiplying "las decenas," (the tens) make sure the children do not forget the zero.

COMMON ERROR

$$\begin{array}{r} 32 \\ \times 3 \\ \hline 6 \\ +9 \\ \hline \end{array}$$

ERROR →

SHOULD BE →

$$\begin{array}{r} 32 \\ \times 3 \\ \hline 6 \\ +90 \\ \hline 96 \end{array}$$

$3 \times 3 = 6$
 $3 \times 30 = 90$

2. When multiplying the long way, make sure the children place the digits in the correct columns. Ones belong in the ones' column. Tens belong in the tens' column.

COMMON ERROR

$$\begin{array}{r} 43 \\ \times 3 \\ \hline 9 \\ +120 \\ \hline 210 \end{array}$$

ERROR →

SHOULD BE →

$$\begin{array}{r} 43 \\ \times 3 \\ \hline 9 \\ +120 \\ \hline 129 \end{array}$$

$3 \times 3 = 9$
 $3 \times 40 = 120$

Repeat with many other examples of multiplying "usando el metodo largo." If a child understands what he/she is doing when doing the problems the long way, the short way will be easy and make sense. Also, the child will have less difficulty with regrouping (carrying) in multiplication.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VII: AMERICAN INDIANS

THIRD
ACTIVITY
FOR
SKILL F

Practice exercise.

Multiplica usando el método largo.

$$\begin{array}{r} 1. \quad 3 \ 2 \\ \times \quad 2 \\ \hline \end{array} \quad \begin{array}{l} 2 \times 2 = \\ 2 \times 30 = \end{array}$$

$$\begin{array}{r} 2. \quad 2 \ 3 \\ \times \quad 3 \\ \hline \end{array} \quad \begin{array}{l} 3 \times 3 = \\ 3 \times 20 = \end{array}$$

$$\begin{array}{r} 3. \quad 1 \ 4 \\ \times \quad 2 \\ \hline \end{array} \quad \begin{array}{l} 2 \times 4 = \\ 2 \times 10 = \end{array}$$

$$\begin{array}{r} 4. \quad 4 \ 3 \\ \times \quad 3 \\ \hline \end{array} \quad \begin{array}{l} 3 \times 3 = \\ 3 \times 40 = \end{array}$$

$$\begin{array}{r} 5. \quad 12 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 62 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 52 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 72 \\ \times 3 \\ \hline \end{array}$$

FOURTH
ACTIVITY
FOR
SKILL F

Multiplying using "el método corto," (the short way).

Once children have learned the long way, the short way is simple.

Write the problem $\begin{array}{r} 32 \\ \times 3 \\ \hline \end{array}$ on the chalkboard.

First, solve it the long way.

$$\begin{array}{r} 32 \\ \times 3 \\ \hline 6 \quad 3 \times 2 = 6 \\ +90 \quad 3 \times 30 = 90 \\ \hline 96 \end{array}$$

Second, explain that when using "el metodo corto. the 3 will be multiplied times the ones digit (2) as was done before. When multiplying 3 times the tens' digit (3), you are simply going to write the produce of 3×3 on the same line that 3×2 was written on. So, $\begin{array}{r} 32 \\ \times 3 \\ \hline \end{array}$ is solved like this: $\begin{array}{r} 32 \\ \times 3 \\ \hline 96 \end{array}$

Discuss how you get the same answer whether doing it the long way or the short way.

Repeat this whole process with other examples.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VII: AMERICAN INDIANS

FIFTH
ACTIVITY
FOR
SKILL F

Practice exercise:

Multiplica:

$$\begin{array}{r} 1. \quad 23 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 33 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 14 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 43 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 13 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 62 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 53 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 82 \\ \times 3 \\ \hline \end{array}$$

SIXTH
ACTIVITY
FOR
SKILL F

When teaching "el método corto," problems involving money can easily be presented. Children must remember to bring down the decimal point and the dollar sign. For example:

$$\begin{array}{r} \$.32 \\ \times 3 \\ \hline \$.96 \end{array}$$

Do not forget **\$**.

Present money problems using "el método corto" in the same way as presented in the Fourth Activity of Skill F.

SEVENTH
ACTIVITY
FOR
SKILL F

Example word problems.

Resuelve.

1. Si cada tribu tiene 33 indios, ¿cuántos indios hay en 3 tribus?
2. Hay 21 plantas de maíz en cada fila si hay 5 filas de maíz, ¿cuántas plantas hay por todo?
3. Ramón compró 4 bolsas de dulces. En cada bolsa, hay 12 pedazos de dulces. ¿Cuántos pedazos de dulces compró Ramón por todo?
4. Audrey Maria compró 3 lápices. Cada lápiz cuesta \$.12. ¿Cuánto costaron los 3 lápices?

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VII: AMERICAN INDIANS

SKILL G: Multiplying 3 digits times
1 digit with no regrouping.

FIRST
ACTIVITY
FOR
SKILL G

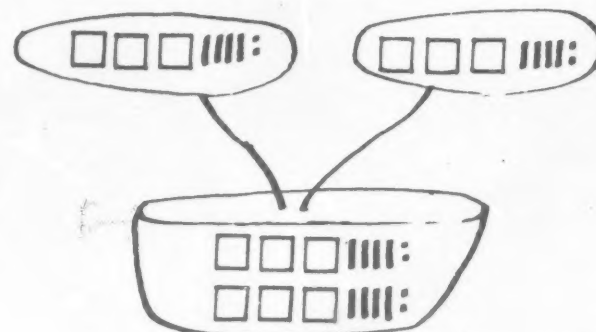
Introduce multiplying 3 digits by 1 digit by visually showing various problems with the Base Ten Symbols. Remember $\square = 100$ (hundred), $\text{||||} = 10$ (ten) and $\bullet = 1$ (one).

For example: $\begin{array}{r} 342 \\ \times 2 \end{array}$ would be shown as:

First the ones would be counted (4).
Then the tens would be counted (8).
Then the hundreds would be counted (6).

Any multiplication problem can be shown in this manner.

Present other examples as needed.



6 hundreds 8 tens 4 ones = 684

SECOND
ACTIVITY
FOR
SKILL G

Multiplying using "el método largo," (the long way).

Write the problem 232 on the chalkboard. Multiplying 3 digits times 1 digit should be

$\begin{array}{r} \times 3 \\ 232 \end{array}$ explained and developed with the students in the same way as multiplying 2 digits by 1 digit was explained in the Second Activity of Skill F of Unit VII. The 3 is multiplied times the ones' digit (2) first, the tens' digit (3) second, and then times the hundreds' digit (2) third.

The number should be examined.

232 = 2 hundreds (200) 3 tens (30) 2 ones (2)

NOTE: HUNDREDS HAVE 2 ZEROS. REMIND CHILDREN OF THIS FACT.

Then, do the problem, 232 the long way, in the same way as done previously.

The only new thing in this problem is here.

$\begin{array}{ c } \hline \times 3 \\ \hline \end{array}$	$3 \times 2 = 6$
$\begin{array}{ c } \hline \times 3 \\ \hline \end{array}$	unidades
$\begin{array}{ c } \hline \times 3 \\ \hline \end{array}$	$3 \times 30 = 90$
$\begin{array}{ c } \hline \times 3 \\ \hline \end{array}$	decenas
$\begin{array}{ c } \hline \times 3 \\ \hline \end{array}$	$3 \times 200 = 600$
$\begin{array}{ c } \hline \times 3 \\ \hline \end{array}$	centenas

When multiplying 3×2 hundreds, the student must remember that hundreds have 2 zeros. All students have to do to solve 3×200 is multiply the 2 numbers, and add the 2 zeros. The partial product is 600.

So, 232 solved by using "el metodo largo" would appear as shown below. (Notice the place guide lines to help in the proper positioning of the digits.)

$$\begin{array}{r} 232 \\ \times 3 \\ \hline 6 \\ 90 \\ + 600 \\ \hline 696 \end{array} \quad \begin{array}{l} 3 \times 2 = 6 \\ 3 \times 30 = 90 \\ 3 \times 200 = 600 \end{array}$$

By adding the partial products, the product is 696.

NOTE: When doing problems the long way, students must not forget the zeros for the tens and hundreds. They must also be careful to position the digits in the correct columns.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VII: AMERICAN INDIANS

THIRD
ACTIVITY
FOR
SKILL G

Practice Exercise:

Multiplica usando el método largo.

$$\begin{array}{r}
 1. \quad \begin{array}{r} 1 \ 3 \ 4 \\ \times \ 2 \\ \hline \end{array} \quad \begin{array}{l} 2 \times 4 = \\ 2 \times 30 = \\ 2 \times 100 = \end{array}
 \end{array}$$

$$\begin{array}{r}
 2. \quad \begin{array}{r} 3 \ 1 \ 3 \\ \times \ 3 \\ \hline \end{array} \quad \begin{array}{l} 3 \times 3 = \\ 3 \times 10 = \\ 3 \times 300 = \end{array}
 \end{array}$$

$$\begin{array}{r}
 3. \quad \begin{array}{r} 1 \ 2 \ 3 \\ \times \ 2 \\ \hline \end{array} \quad \begin{array}{l} 2 \times 3 = \\ 2 \times 20 = \\ 2 \times 100 = \end{array}
 \end{array}$$

$$\begin{array}{r}
 4. \quad \begin{array}{r} 230 \\ \times 3 \\ \hline \end{array}
 \end{array}$$

$$\begin{array}{r}
 5. \quad \begin{array}{r} 413 \\ \times 3 \\ \hline \end{array}
 \end{array}$$

$$\begin{array}{r}
 6. \quad \begin{array}{r} 222 \\ \times 4 \\ \hline \end{array}
 \end{array}$$

FOURTH
ACTIVITY
FOR
SKILL G

Multiply using "el método corto," (the short way).

The short way of multiplying 3 digits by 1 digit should be simple for anyone who has learned the long way.

Write the problem, 312 on the chalkboard.

x3

Explain that to solve this problem the short way, 3 will be multiplied times the 2 in the ones' digit, times the 1 in the tens' digit, and times the 3 in the hundreds' digit. The product for each step will be written on the same line.

So, 312 is solved like this:

312	$3 \times 2 = 6$
<u>x3</u>	$3 \times 1 = 3$
936	$3 \times 3 = 9$

Give various examples, allowing the children to do the problems on the chalkboard under your supervision. Have children solve problems using both "el método largo y el método corto."

FIFTH
ACTIVITY
FOR
SKILL G

Practice Exercise:

Multiplíca.

1.
$$\begin{array}{r} 233 \\ \times 3 \\ \hline 699 \end{array}$$

2.
$$\begin{array}{r} 333 \\ \times 2 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 142 \\ \times 2 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 432 \\ \times 3 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 130 \\ \times 2 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 621 \\ \times 4 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 513 \\ \times 3 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 823 \\ \times 3 \\ \hline \end{array}$$

SIXTH
ACTIVITY
FOR
SKILL G

Money problems should be introduced and practiced when learning "el metodo corto." Children should have no difficulty solving these problems. However, children must remember to place the dollar sign (\$) and the decimal point (.) in the answer. Tell children to bring down the (\$) and (.). For example:

BRING THE \$ AND .	\$3.12
DOWN!	$\begin{array}{r} \times 3 \\ \hline \end{array}$
	\$6.36

To keep children "on their toes," integrate money problems along with other regular problems.

SEVENTH
ACTIVITY
FOR
SKILL G

Example word problems.

Resuelve:

1. Wanda se gana \$2.23 diarios vendiendo periodicos. ¿Cuánto ganara Wanda en 3 días.
2. Hace cien años en los llanuras de América del Norte, habían muchas manadas de búfalos. Si habian 221 bufalos en cada manada, ¿cuántos búfalos habian en 4 manadas?
3. Los indios de Connecticut cosechaban 132 canastas de maíz en una semana. ¿Cuántas canastas cosechaban en 2 semanas?
4. Los indios de la costa oeste de América del Norte eran pescadores. Si un indio pescaba 123 peces en un día, ¿cuántos peces pescaba en 3 días?

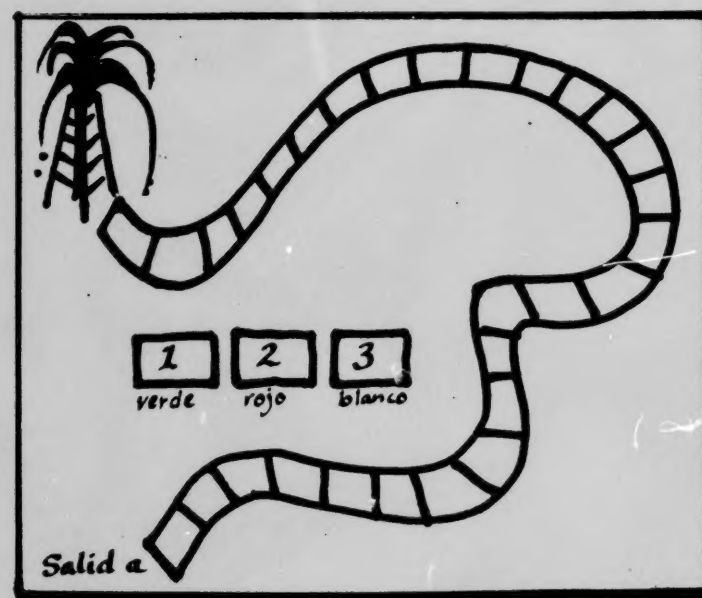
EIGHTH
ACTIVITY
FOR
SKILL G

Play "Will the Navajo Indians Find Oil?"

Before playing, explain how "black gold," oil, has been discovered in the Southwest on Indian land. This discovery has helped the Navajos overcome many of their economic problems. With the luxury of the new found wealth, Navajo people have been able to continue to preserve their culture and live their lives as they wish.

THE GAME:

1. Develop a game board with a spinner and cards of three colors.
2. Each card will have a multiplication problem on it. Bonus and penalty cards should be included to add to the fun. (Example: The oil drillers got too hot to work, go back two spaces.)
3. The problems on the green cards should be easy. The red cards should have harder problems and the white cards should have the most difficult problems. If a player answers a green card problem, he/she moves 1 space, red card problems are worth 2 spaces, and green card problems are worth 3 spaces.
4. To play, the player spins the spinner. He/she takes a colored card and tries to answer the problem. If he/she is successful, the aforementioned spaces are advanced. First player to strike oil is the winner.



MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VII: AMERICAN INDIANS

MULTIPLICATION/DIVISION TABLE

SKILL H: Computing quotients by using the multiplication table.

FIRST ACTIVITY FOR SKILL H

Students have already been introduced to the Multiplication Table so computing quotients by using the table should be relatively easy.

Review with the children how multiplication and division are related.

Write the multiplication problem $5 \times 3 = \square$ on the chalkboard.

Solve the problem $5 \times 3 = \square$ by using the Multiplication Table. Then, ask the students to write the two related division sentences.

$$5 \times 3 = 15 \quad \begin{array}{l} 15 \div 3 = \square \\ 15 \div 5 = \square \end{array}$$

	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

FIRST ACTIVITY FOR SKILL H (CONTINUED)

To solve $15 \div 3 = \square$ using the Multiplication Table, have children find the divisor, 3, along the left hand side of the table. Then, instruct them to move horizontally across the table until they come to 15. (SEE EXAMPLE TABLE.) Once they get to 15, have them look at the number at the top of the column, and that is the quotient, 5. Since multiplication and division are related, and they already know how to use the table to solve multiplication problems, this method of computing quotients should make sense.

Give another example $56 \div 7 = \square$. Do the same thing as before. (SEE EXAMPLE TABLE.) The quotient is 8. Repeat with other examples until all children know and understand how to compute quotients using the table.

NOTE: However, it must be remembered that multiplication/division tables are crutches. Students should be pushed to memorize the facts so they do not have to rely on using tables.

SECOND
ACTIVITY
FOR
SKILL H

Prepare a written exercise of division problems. Have a multiplication table visible for children to use.

Resuelve:

$$\begin{array}{l} 1. \quad 15 \div 5 = \square \\ 2. \quad 20 \div 4 = \square \\ 3. \quad 9 \div 3 = \square \\ 4. \quad 18 \div 6 = \square \\ 5. \quad 24 \div 4 = \square \end{array}$$

$$\begin{array}{l} 6. \quad 25 \div 5 = \square \\ 7. \quad 42 \div 7 = \square \\ 8. \quad 48 \div 6 = \square \\ 9. \quad 56 \div 8 = \square \\ 10. \quad 63 \div 9 = \square \end{array}$$

$$\begin{array}{l} 11. \quad 7 \overline{) 49} \\ 12. \quad 3 \overline{) 27} \\ 13. \quad 4 \overline{) 36} \end{array}$$

$$\begin{array}{l} 14. \quad 9 \overline{) 54} \\ 15. \quad 8 \overline{) 32} \\ 16. \quad 6 \overline{) 36} \end{array}$$

17. El cacique tiene que dividir 72 flechas entre 8 guerreros. ¿Cuántas flechas recibirá cada guerrero?

SKILL I: Filling in answer forms for
standardized tests in mathematics.

INTRODUCTION:

Many educators feel that some children's poor performance on standardized tests is due to the children's lack of experience and inability to transfer an answer from a test booklet to an answer sheet. They say the children get mixed up when there is a test booklet and a separate answer sheet. One possible remedy to this problem is to give children lots of practice in taking these types of tests so they will be familiar with the standardized test. This is very simple to do.

Whenever criteria reference tests (chapter tests, skill tests, etc.) are given, make a separate answer sheet for the child to mark his/her answers. Ditto masters can be made to duplicate more than one color by using different colored ditto ink sheets (the ink surfaced sheet of a complete ditto master) with the same ditto master top sheet (the part of the ditto you write or type on). Multi-colored answer sheets help the children know where they should mark their answers.

An example mini-test with an accompanying answer sheet follows on the next page.

FIRST ACTIVITY FOR SKILL I (CONTINUED)

Before allowing children to work on their tests, carefully explain how the test is to be completed. Assist children in selecting an answer in the test booklet and marking it on the answer sheet.

EXAMPLE TEST AND ANSWER SHEET.

<u> </u> nombre	<u> </u> fecha
<u> </u> maestro	<u> </u> grado

EXAMEM - Capitulo 7

Direcciones: Resuelve cada ejercicio. Escoge tu contestacion y marcala en la hoja de contestacion.
 NO ESCRIBAS EN ESTA HOJA.

Ejemplo:

20	a. 80
<u>x3</u>	b. 60
	c. 50
	d. 30

1. $\begin{array}{r} 30 \\ \times 3 \\ \hline \end{array}$ a. 90 b. 120 c. 60 d. 50	2. $\begin{array}{r} 42 \\ \times 2 \\ \hline \end{array}$ a. 46 b. 84 c. 42 d. 82	3. $\begin{array}{r} 21 \\ \times 5 \\ \hline \end{array}$ a. 22 b. 43 c. 60 d. 105
4. $\begin{array}{r} 320 \\ \times 3 \\ \hline \end{array}$ a. 960 b. 360 c. 660 d. 130	5. $\begin{array}{r} 423 \\ \times 3 \\ \hline \end{array}$ a. 423 b. 846 c. 345 d. 1269	6. $\begin{array}{r} 333 \\ \times 3 \\ \hline \end{array}$ a. 969 b. 666 c. 999 d. 333

<u> </u> nombre	<u> </u> fecha
<u> </u> maestro	<u> </u> grado

HOJA DE CONTESTACION. EXAMEM - Capitulo 7

Direcciones: Resuelve cada ejercicio
 Ennegrece el circulo bajo la letra de tu contestacion.

Ejemplo:

a	b	c	d
☐	☒	☐	☐

1. <table style="width: 100%; text-align: center;"> <tr><td>a</td><td>b</td><td>c</td><td>d</td></tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </table>	a	b	c	d	☐	☐	☐	☐	2. <table style="width: 100%; text-align: center;"> <tr><td>a</td><td>b</td><td>c</td><td>d</td></tr> <tr> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </table>	a	b	c	d	☐	☐	☐	☐
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- SKILL A: Reviewing odd and even numbers.
- SKILL B: Measuring liquids (U.S.) cup, pint, quart, gallon.
- SKILL C: Measuring liquids (metric) liter.
- SKILL D: Measuring weight (U.S.) ounce, pound.
- SKILL E: Measuring weight (metric) gram, kilo.
- SKILL F: Determining appropriate unit and tool of measure.
- SKILL G: Identifying terms and geometric elements.
- SKILL H: Identifying shapes in a plane.
- SKILL I: Finding perimeter.
- SKILL J: Identifying shapes in space.

SKILL A: Reviewing odd and even numbers.

VOCABULARY:

even number
odd number

"número par"
"número non"

FIRST
ACTIVITY
FOR
SKILL A

Review counting by two's to 100. Explain that in counting by two's, the numbers always end in 0, 2, 4, 6, 8.

Show numbers that are multiples of two and instruct the students to look at the last number. If it ends with one of the numbers stated before, they are going to call it an even number. If it does not end in one of these, then it will be an odd number.

Give several numbers on the chalkboard and help students find out if it is an odd or an even number. Help them notice that it does not matter how many digits the number has to know if it is even or odd.

SECOND
ACTIVITY
FOR
SKILL B

From a pile of number cards have students select a card and say if it is even or odd. If he/she is correct he/she keeps the card. The player with the most cards wins.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VIII: AFRICA

SKILL B: Measuring liquids (U.S.).

VOCABULARY:

measure	"medir"
liquid	"líquido"
cup	"taza"
pint	"pinta"
quart	"cuartillo"
gallon	"galón"

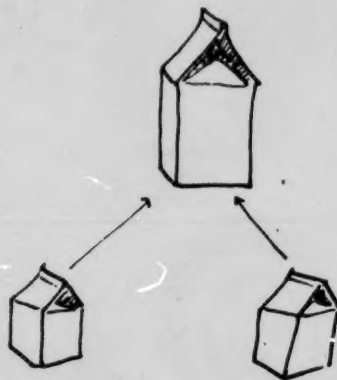
FIRST
ACTIVITY
FOR
SKILL B

Bring empty containers that have specified on each one cup, one pint, one quart and one gallon.

Ask children if they have seen containers like these before. What do they have in them?
Make a list. Would one of these have rice in it, flour, buns, etc.?

Explain that things found in containers with these words on them are liquids. Things like butter, margarine, whipping cream and ice cream, found in these containers were liquids at one time, but have changed because they have been refrigerated.

SECOND
ACTIVITY
FOR
SKILL B



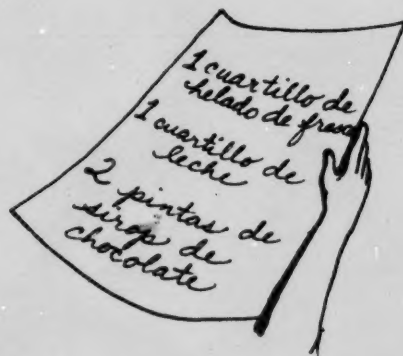
Prepare the following bulletin board display.
Use empty cartons or pictures of them.

Each section should be put up as the students find out
the facts for themselves. Example:

Teacher: Show a quart and a pint, and say,
"Which of these containers holds
more water, the quart or the pint?"
"How many pints do you need to fill
the quart?"

Present word problems like:

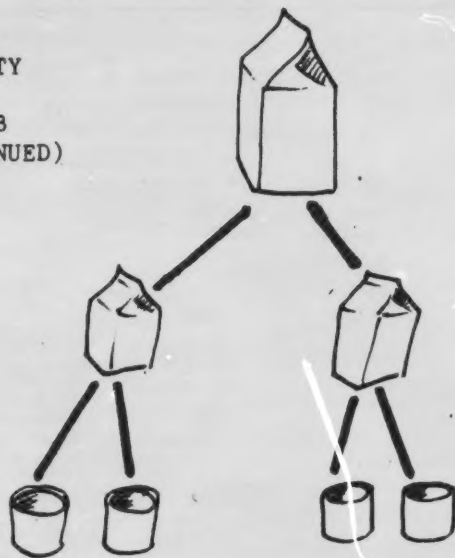
Sara tenía que comprar varias cosas en el
supermercado. Ella tenía esta lista.
Buscaba y buscaba pero no encontraba lo
que necesitaba.



- a. El helado de fresa solo venía en pintas.
¿Cuántas debería de comprar? _____
- b. El cartón de leche decía 4 tazas.
¿Debería de comprarlo? _____
- c. El sirop de chocolate decía 1 taza.
¿Qué debería de hacer? _____

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VIII: AFRICA

SECOND
ACTIVITY
FOR
SKILL B
(CONTINUED)

After the students find this out set up that part of the bulletin board.

Continue by showing the cup and the pint. Ask which would hold more water and then ask how many cups would be needed to fill the pint.

After finding out that two cups fill one pint; place two cups for each pint on the bulletin board.

Now ask questions like:

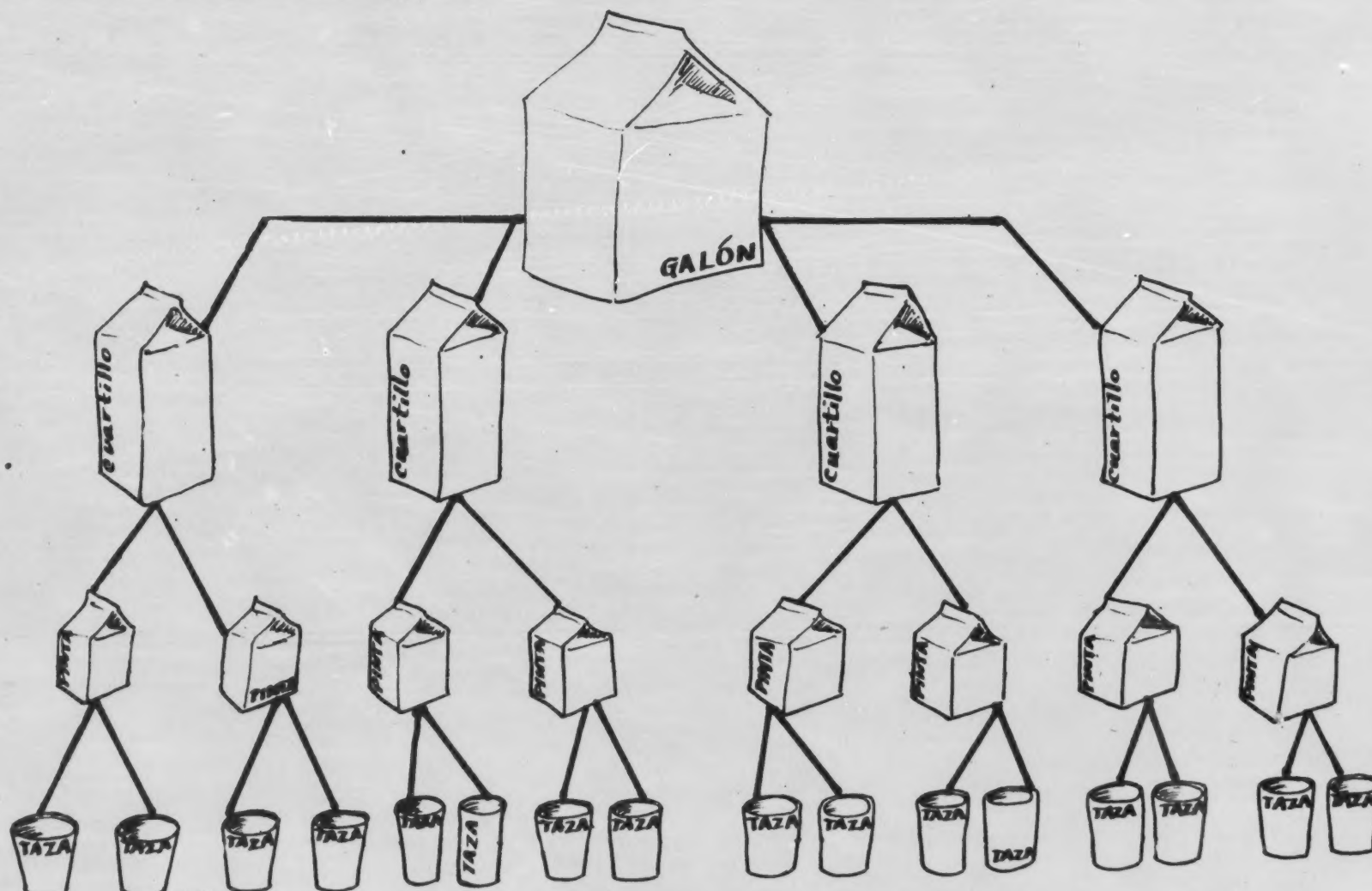
¿Cuántas tazas caben en un cuartillo?

¿2 cuartillos, 3 cuartillos o 4 cuartillos?

¿Cuántas pintas caben en 2 cuartillos?

¿3 cuartillos o 4 cuartillos?

SECOND ACTIVITY FOR SKILL B (CONTINUED)



887

Midiendo Líquidos

888

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VIII: AFRICA

THIRD
ACTIVITY
FOR
SKILL B

Place the quarts and the gallon on the bulletin board. Place the extra cups and pints accordingly. Make sure that students have come to the conclusion themselves of where the cups and pints are placed. Ask questions like before.

See: "midiendo líquidos," (second activity, skill B)

FOURTH
ACTIVITY
FOR
SKILL B

Develop a worksheet such as the following. Students should be encouraged to pour liquid from one container to another or just look at the bulletin board display.

FOURTH ACTIVITY FOR SKILL B (CONTINUED)

WORKSHEET

I. Completa las oraciones.

- 4 cuartillos = 1 galón
- 8 cuartillos = ? galones
- 12 cuartillos = ? galones
- 16 cuartillos = ? galones

- 1 galón = 8 pintas
- 2 galones = ? pintas
- 3 galones = ? pintas
- 4 galones = ? pintas

- 1 galón = 16 tazas
- 2 galones = ? tazas
- 3 galones = ? tazas

II. ¿Cuál medida es mayor?

- 6 pintas _____ 1 galón
- 3 cuartillos _____ 4 pintas
- 1 galón _____ 2 cuartillos
- 10 tazas _____ 1 galón

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VIII: AFRICA

FIFTH
ACTIVITY
FOR
SKILL B

Take a trip to a supermarket and find things that are measured
in: cups, pints, quarts and gallons. Each child should fill
in his/her own chart.

¿Qué cosas se miden en . . .			
tazas	pintas	cuartillos	galones
	fresas congeladas	leche	

SKILL C: Measuring liquids (metric).

VOCABULARY:

liter
cubic decimeter

"litro"
"decímetro cúbico"

FIRST
ACTIVITY
FOR
SKILL C

Explain the following:

In Europe liquids are sold in cubic decimeters. If you make a box that has the length of a decimeter on every side and fill it with liquid, it would hold exactly a cubic decimeter of liquid.

This volume is more commonly known as a liter. A cubic decimeter holds one liter of liquid as the cubic decimeter is a liter container.

MATHEMATICS CURRICULUM FOR GRADE THREE

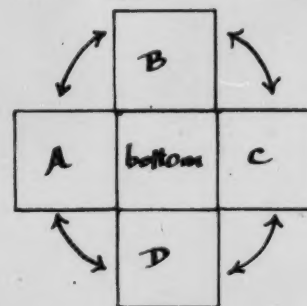
UNIT VIII: AFRICA

SECOND
ACTIVITY
FOR
SKILL C

Make a cubic decimeter following the example and find out how much is a liter of liquid.

1. Cut a shape like this one on an oaktag, making each square 1 decimeter in length and width.

1 dc. = 10 cm.



2. Fold sides A , B , C , and D up and tape corners. Do not tape the opening at the top.
3. Get a plastic foodbag (11" x 14") and stuff it into the cubic decimeter so that it lines the inside. Do not tear the plastic and overlap the cubic decimeter all the way around.
4. It is now ready to be filled.



896

Try finding liter containers by pouring the liquid from the cubic decimeter into everyday containers (pitchers, vases, bottles, etc.).

897

SECOND
ACTIVITY
FOR
SKILL C
(CONTINUED)

Make a chart like the following to record your findings.

	Más de un litro	1 litro	Menos de un litro
Florero			
Botella de soda			
Envase plástico			

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VIII: AFRICA

SKILL D: Measuring weight (United States).

VOCABULARY:

ounces
pounds

"onzas"
"libras"

oz.
lbs.

FIRST
ACTIVITY
FOR
SKILL D

Ask students how much they weigh. If they know, ask them if they were weighed with a ruler, a gallon or something else. If they do not know, ask them what we would need to weigh them. Give several alternatives.

Bring a scale to the room and have each child weighed. Call to their attention the terms, ounces and pounds.

An ounce is the unit of measure for light objects and the pound is the unit of measure for heavier objects.

FIRST
ACTIVITY
FOR
SKILL D
(CONTINUED)

Children are to select which measure would describe the weight of each picture.

¿Qué medida describe mejor el peso de lo siguiente?

- | | | | | |
|----|--|----------|----------|---------|
| 1. |  | sello | a. libra | b. onza |
| 2. |  | manzana | a. libra | b. onza |
| 3. |  | mariposa | a. libra | b. onza |
| 4. |  | tigre | a. libra | b. onza |
| 5. |  | flor | a. libra | b. onza |

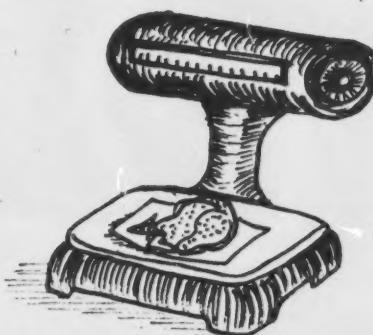
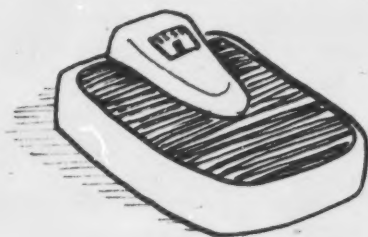
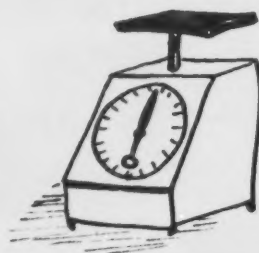
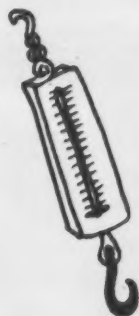
MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VIII: AFRICA

SECOND
ACTIVITY
FOR
SKILL D

Take a trip to a shopping area and find things that are weighed. Notice the different scales used in:

grocery stores
post offices
doctors' offices
hospitals



902

903

THIRD
ACTIVITY
FOR
SKILL D

In order to feel what a pound is, have students find something that weighs a pound (can of coffee, package of sugar, etc.) and hold it in one hand. Feel the weight. Now pick something else in the other hand and feel. Does it weigh about the same? More? Less? Switch the weights to the other hand and feel.

Explain that the abbreviation for pound is lb. Make a chart of the findings. Write the names of the objects lifted and record if they weigh one pound, less than one pound or more than one pound.

Objeto	Pesa como 1 lb.	Pesa más de 1 lb.	Pesa menos de 1 lb.

FOURTH
ACTIVITY
FOR
SKILL D

Have students feel an ounce by holding in their hand five quarters. Find other objects that weigh an ounce. Even though ounces are light, they are very important because:

1. The ounce weight of a letter tells you how much postage has to be paid.
2. Ounce weight tells you how much perfume you are buying.
3. Ounce weight will help you compare prices.

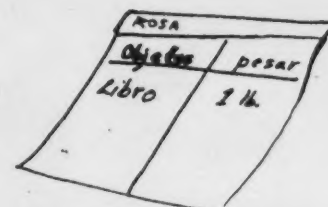
Remind students that there are 16 ounces in one pound.

(Put 80 quarters in one hand and a one pound package of sugar in the other. Compare weights.)

FIFTH
ACTIVITY
FOR
SKILL D

WEIGHING THINGS

Prepare a box with different objects and a ditto sheet with the name and/or a picture of each. Have students weigh each object and record on the sheet. When everybody has finished, compare and discuss.



SIXTH
ACTIVITY
FOR
SKILL D

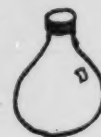
Give exercises like the following for the students to tell you which would be the best bargain.



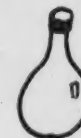
12 onzas por 50c



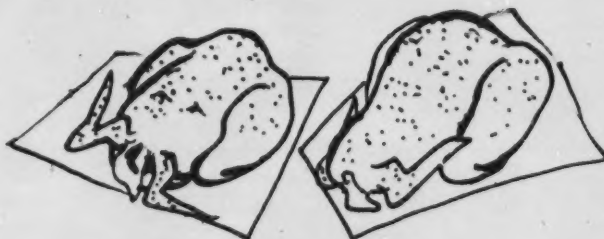
1 libra por 50c



8 onzas por 89c



7 onzas por 89c



2 libras por \$2.50 36 onzas por \$2.50



1 libra y 4 onzas
por \$1.50



18 onzas por \$1.50

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VIII: AFRICA

SKILL E: Measuring weight (metric).

VOCABULARY:

grams
kilograms

"gramos"
"kilogramos"

g.
kg.

FIRST
ACTIVITY
FOR
SKILL E

Explain that there is another system to measure weight. Hospitals, scientists, military people and almost everybody in other countries use metric weights. Instead of weighing with ounces and pounds, they use grams and kilograms.

The metric measure, gram, is used for light objects and the kilogram is used for heavier objects.

FIRST
ACTIVITY
FOR
SKILL E
(CONTINUED)

Children should select the metric measure that best describes each object.

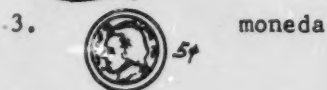
¿Qué medida metrica describe mejor el peso de lo siguiente?



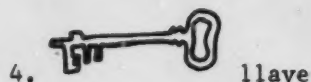
a. gramos b. kilogramos



a. gramos b. kilogramos



a. gramos b. kilogramos



a. gramos b. kilogramos

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VIII: AFRICA

SECOND
ACTIVITY
FOR
SKILL E

Try to find metric scales and weigh different things. You need two scales; one marked in kilograms and the other one marked in grams.

There are 1000 grams in one kilogram, so the kilogram scale would not be large enough to show 1000 grams for each kilogram.

THIRD
ACTIVITY
FOR
SKILL E

Go to a supermarket and find items which are marked in kilograms (kg.) and grams (g.). Record your findings.

SKILL F: Determining appropriate unit
and tool of measure.

VOCABULARY:

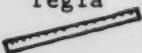
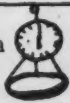
ruler	"regla"
measuring cup	"taza de medir"
scale	"balanza"
inches	"pulgadas"
feet	"pies"
yards	"yardas"
miles	"millas"
ounces	"onzas"
pounds	"libras"
cups	"tazas"
pints	"pintas"
quarts	"cuartillos"
gallons	"galones"

FIRST
ACTIVITY
FOR
SKILL F

Find pictures or bring different items to the classroom. Have students become familiar with them. Ask them, if they were going to the store to buy these how they would be measured: with a scale, with a measuring cup or with a ruler.

FIRST
ACTIVITY
FOR
SKILL F
(CONTINUED)

Make a chart as students discover how one thing can be measured.

Objetos	regla 	taza de medir 	balanza 
 pedazo de papel	✓		✓
 jugo		✓	✓
 peine			
 elefante			

SECOND
ACTIVITY
FOR
SKILL F

Read the following sentences to the students and have them tell you what is wrong with it.

1. El niño pesó 13 pies.
2. Mamá mandó a comprar una pulgada de leche.
3. El mapa dice que hay 10 galones de distancia entre España y Africa.
4. Se pesó y aumentó 3 yardas.
5. Me compré 3 galones de tela para hacerme un traje.
6. El pote de perfume era tan pequeño que solo tenía $\frac{1}{2}$ galón de perfume.
7. El paquete que mandó pesó 5 cuartillos.
8. Corta un pedazo de papel 12 pintas de largo y 8 pintas de ancho.
9. El paquete de arroz pesó 5 millas.
10. Tenía que comprar un pies de mantequilla.

THIRD
ACTIVITY
FOR
SKILL F

The same type of activity can be done with metric measurements.

centímetro
metro
kilómetro
gramo
kilogramo
litro

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VIII: AFRICA

SKILL G: Identifying terms and geometric elements.

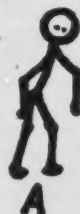
VOCABULARY:

point
line segment
curves
congruent
polygon

"punto"
"segmento"
"curva"
"congruente"
"polígono"

**FIRST
ACTIVITY
FOR
SKILL G**

Place a student somewhere in the classroom saying that is point A. Place another student somewhere else and say that is point B.



Explain that a point is just a place and that now you want to get from point A. to point B.

FIRST
ACTIVITY
FOR
SKILL G
(CONTINUED)

A. _____ .B

We can just go straight from A. to B., or we can turn at some places and not go straight.



Make the drawing of both ways on the chalkboard and explain that when two points are joined by a straight line it is called a line segment. When they are not joined by a straight line it is called a curve.

Find curves and line segments in the classroom and identify them as such. Remember to include the two points.

SECOND
ACTIVITY
FOR
SKILL G

Make a sorting game of line segments and curves. Prepare a set of cards with several of each for the student to sort into two pieces.

THIRD
ACTIVITY
FOR
SKILL G

Introduce the term, congruent, by explaining that two line segments that are the same length are congruent.

Draw two congruent line segments on the chalkboard and show students how to find out if they are congruent. (Use the edge of a sheet of paper or a ruler.)

THIRD
ACTIVITY
FOR
SKILL G
(CONTINUED)

WRITTEN EXERCISE

1. ¿Cuáles de estos segmentos son congruentes al $\overline{AB}$?

A. _____ .B

J. _____ .K

M. _____ .N

I. _____ .H

X. _____ .Y

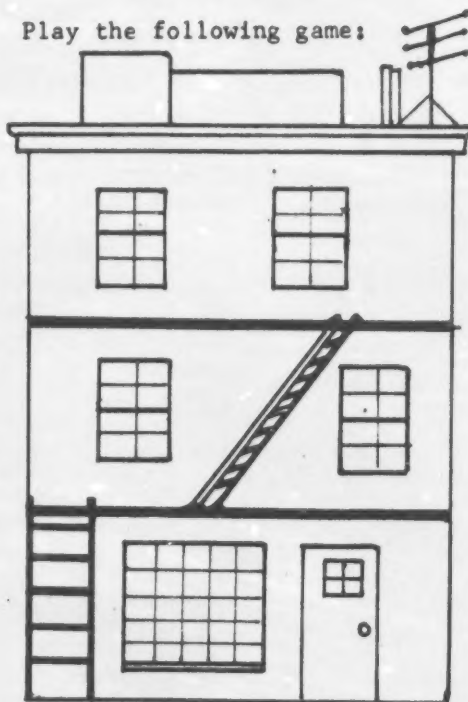
T. _____ .U

R. _____ .S

2. ¿Cuáles otros segmentos son congruentes entre sí?

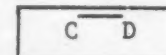
FOURTH
ACTIVITY
FOR
SKILL G

Play the following game:



Encuentra un lado congruente

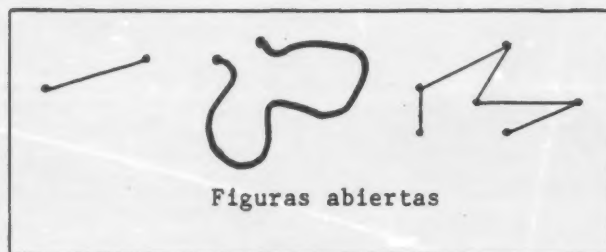
Develop a picture with line segments only, then make cards for the line segments found in the picture.



Segment cards are piled face down. Player picks one card and finds a congruent line segment in the picture. Players make their own rule as to how many chances are given for each play. Keep the card if you find a match.

FIFTH
ACTIVITY
FOR
SKILL C

Introduce the concepts of open figure and closed figure using figures drawn on the board, making figures with string or making figures with a rubber band on the geoboard.



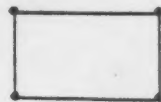
Notice that some of these figures are formed with line segments and others with curves.

SIXTH
ACTIVITY
FOR
SKILL G

Explain that polygons are closed figures formed by line segments. Show different figures and ask if it is a polygon.

¿Cuáles de estas figuras son polígonos?

a.



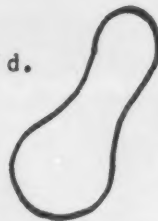
b.



c.



d.



e.



f.



MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VIII: AFRICA

SIXTH
ACTIVITY
FOR
SKILL G
(CONTINUED)

Using graph paper show polygons with different numbers of line segments.

Enseña un polígono formado por . . .

- a. 3 segmentos.
- b. 4 segmentos.
- c. 5 segmentos.
- d. 6 segmentos.
- e. 7 segmentos.
- f. 8 segmentos.

Ask students if the number of corners is the same as the number of line segments for each polygon.

SKILL H: Identifying shapes in a plane.

VOCABULARY:

polygon	"polígono"
rectangle	"rectángulo"
square	"cuadrado"
triangle	"triángulo"
line segments	"segmentos"
sides	"lados"
angles	"ángulos"
right angle	"ángulo recto"
opposite sides	"lados opuestos"
symmetry	"simetría"
circle	"círculo"
center	"centro"

FIRST
ACTIVITY
FOR
SKILL H

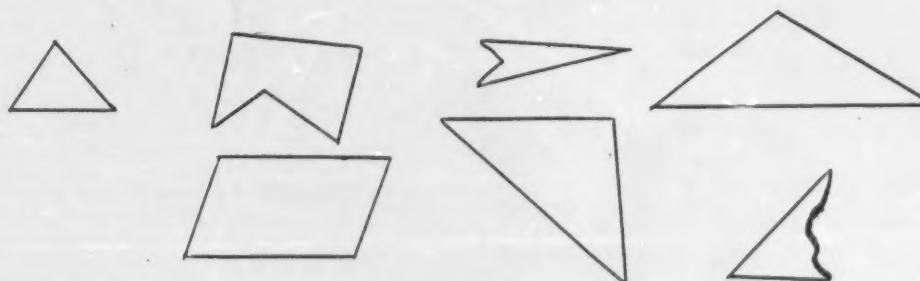
Explain: A polygon that has three line segments is a triangle. The line segments of a polygon are also called sides. The triangle has three sides. How many corners does the triangle have?



FIRST
ACTIVITY
FOR
SKILL H
(CONTINUED)

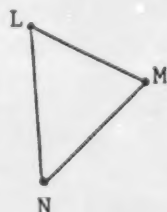
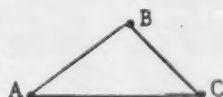
WRITTEN EXERCISE

1. ¿Cuáles de estas figuras son triángulos?



2. ¿Cuántos segmentos tiene cada una de las figuras?

3. ¿Cuál de estos triángulos es congruente al triángulo ABC?



SECOND
ACTIVITY
FOR
SKILL H

Cut strips of paper in many lengths and give them to the students. Have them form triangles.



THIRD
ACTIVITY
FOR
SKILL H

Students can form triangles with toothpicks.



1. Usa 6 palillos para hacer un triángulo.



2. Usa 6 palillos para hacer 2 triángulos.



3. Usa 5 palillos para hacer 2 triángulos.



4. Usa 7 palillos para hacer 3 triángulos.



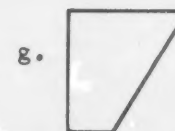
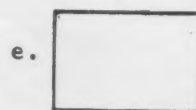
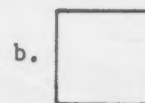
5. Usa 9 palillos para hacer 4 triángulos.

FOURTH
ACTIVITY
FOR
SKILL H

Show different four-sided polygons cut out from construction paper. Ask students how many sides each of these has. Explain that polygons with four sides can have all sorts of different shapes.

Place all the four-sided polygons where they can all be seen at the same time. Focus their attention on the rectangle and the square.

FOURTH
ACTIVITY
FOR
SKILL H
(CONTINUED)



Figures b. and e. are special polygons called rectangles because opposite sides are congruent and they also have right angles.

Explain that a right angle is a corner that has the shape of the letter L. Find right angles in pictures, books, or objects.

FOURTH
ACTIVITY
FOR
SKILL H
(CONTINUED)

Written exercise: Have students use a corner of a sheet of paper to find out if the following are right angles:

¿Es esto un ángulo recto?

- | | | | |
|----|---|----|----|
| 1. |  | sí | no |
| 2. |  | sí | no |
| 3. |  | sí | no |
| 4. |  | sí | no |
| 5. |  | sí | no |
| 6. |  | sí | no |
| 7. |  | sí | no |

MATHEMATICS CURRICULUM FOR GRADE THREE

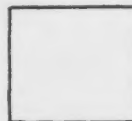
UNIT VIII: AFRICA

FIFTH
ACTIVITY
FOR
SKILL H

Have students go back to the pre-cut figures and find all of the right angles marking them like this:



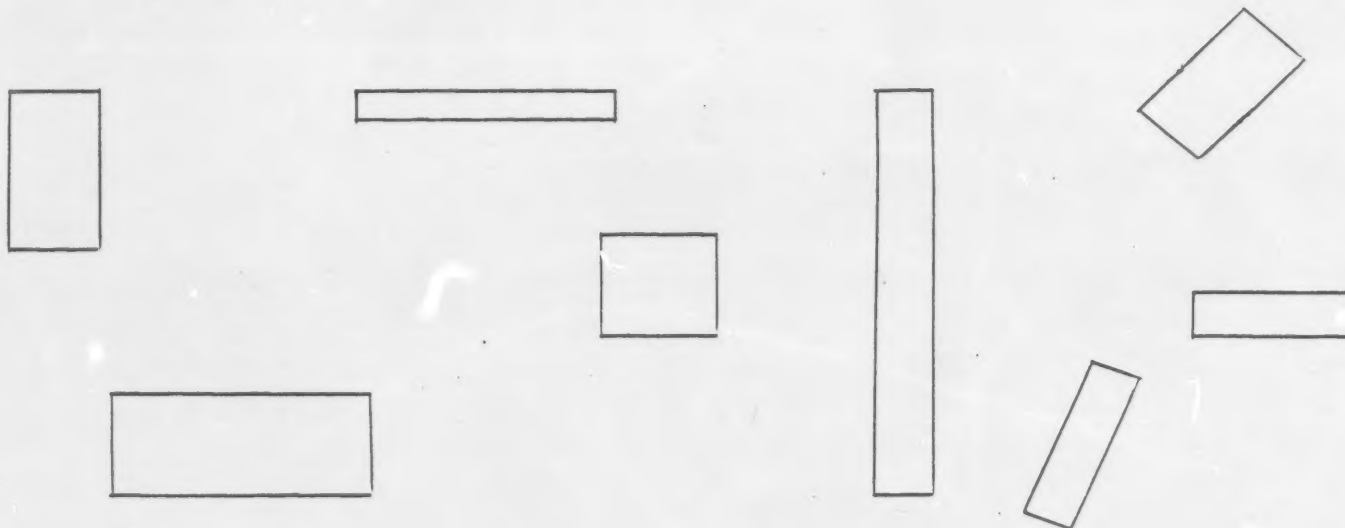
Find the figures that have all four right angles.



Explain what opposite sides are and then measure to find out if they are congruent.

Summarize then, what a rectangle is and give several examples in different positions like those on the following page.

FIFTH ACTIVITY FOR SKILL H (CONTINUED)



Prepare a ditto exercise like the following for students to find which figures are rectangles. They should also mark the right angles and color the congruent opposite sides the same color.

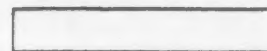
MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VIII: AFRICA

FIFTH
ACTIVITY
FOR
SKILL H
(CONTINUED)

Estudia las figuras. Busca los rectángulos. Marca los ángulos
() y pinta los lados opuestos congruentes del mismo color.

Ejemplo:



SIXTH
ACTIVITY
FOR
SKILL H

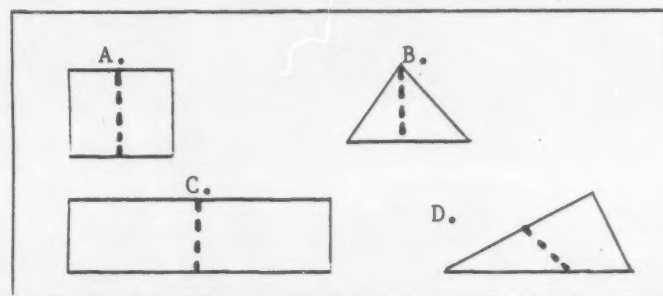
Show students a rectangle and a square and ask if both figures are rectangles. (Four right angles and congruent opposite sides.)

Show the square and ask if the four sides are congruent. Continue by explaining that a rectangle with all sides congruent is a square.

Give a set of polygons for the students to find the squares.

SEVENTH
ACTIVITY
FOR
SKILL H

Give each child a set of figures to cut out.



Ask them to fold the triangle B. along the line and ask if the two points of the triangle fit each other.

When they find out that the two parts fit each other, explain that the fold is called the line of symmetry.

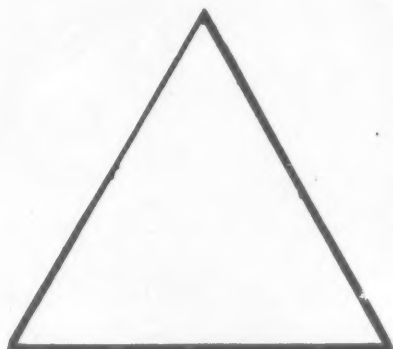
Have students fold triangle D. along the line and ask if that fold is a line of symmetry. Why not?

Explain that some figures have one or more lines of symmetry while others have none.

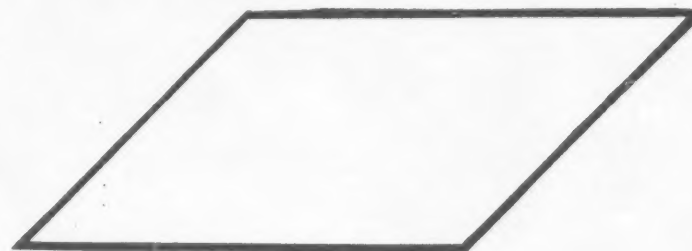
Find out if the following figures have symmetry. Cut each figure out and find out how many different ways you can fold it so that one half matches the other half.

SEVENTH
ACTIVITY
FOR
SKILL H
(CONTINUED)

Corta cada figura y averigua cuántas
líneas de simetría tiene cada una
doblándola para que cada mitad sea
igual a la otra.



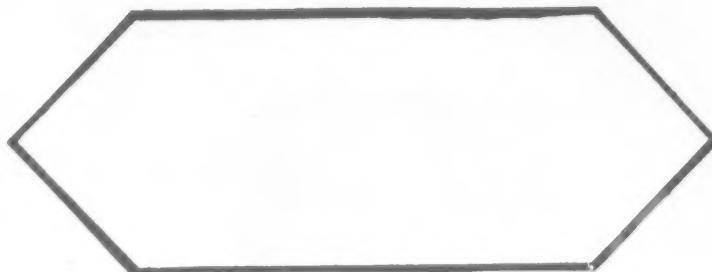
_____ líneas de simetría



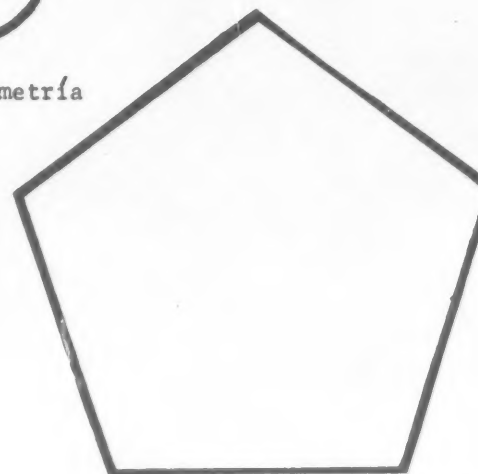
_____ líneas de simetría



_____ líneas de simetría



_____ líneas de simetría



_____ líneas de simetría

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VIII: AFRICA

EIGHTH
ACTIVITY
FOR
SKILL H

Make symmetrical art work.

You need plain pieces of paper and ink or paint.

1. Fold the paper so that one half matches the other half.
2. Open the paper and put one big drop of ink close to the middle, on the fold.
3. Close the paper and rub it about where the drop of ink is.
4. Open the paper. The ink has made a design. Does it have symmetry?

Look for things around you that have symmetry. Make a collection of pictures or objects that have symmetry (butterflies, leaves, letters of the alphabet, chairs, tables, books, etc.).

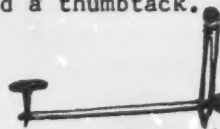
NINTH
ACTIVITY
FOR
SKILL H

Show students a cut-out of a circle and ask them how they would go about forming a circle.

1. Holding hands.
2. Drawing around a can.



3. Using a string and a thumbtack.



4. Using a compass.



5. Any other ways you can think of.

The point in the middle of a circle is called the center point, because the distances from that point to anywhere on the curve are all equal.

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VIII: AFRICA

TENTH
ACTIVITY
FOR
SKILL H

Make a circle. Cut it out and find out if it has symmetry. As the children fold it, explain that one side of a circle is half of a circle.

Make a list of things and/or cut pictures from magazines where circles are used.

ELEVENTH
ACTIVITY
FOR
SKILL H

Explain that a polygon with five sides is a pentagon and a polygon with eight sides is an octagon.

Show both shapes, count the sides and count the angles. Compare and discuss.

Have children look for these figures.



pentágono

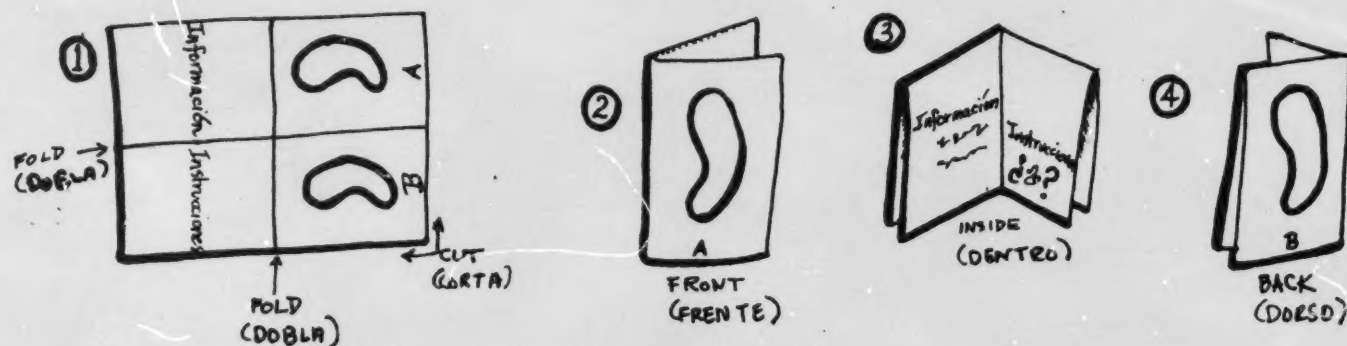


octágono

TWELFTH
ACTIVITY
FOR
SKILL H

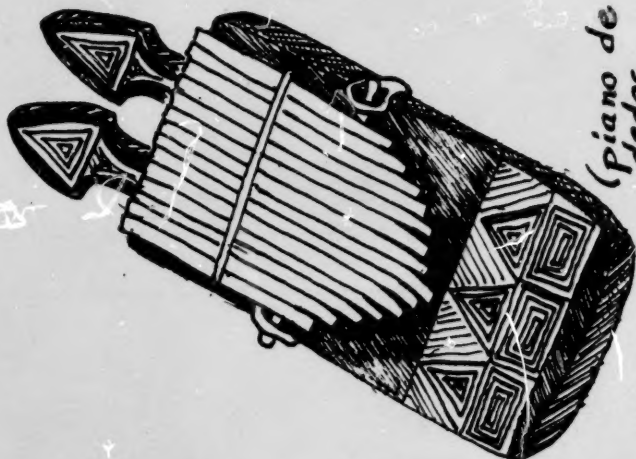
Prepare the following activity that can be done in groups of two, with the teacher and later on between students themselves.

The teacher should introduce the activity when talking about Africa. A set of cards can be made on which two duplicate figures, information on the figures and instructions are included. The cards are designed to be self-checking.



Show each Figure A. and read the information inside the folded card. Read the instructions at the bottom and have a student respond. Use Figure B. for checking.

cut (corta)



(piano de
dedos
pulgares)
MBIRA
(mm-BEE-rah)

THUMB PIANO

Fold
(dobla)

B

963

(dobla)
Fold**MBIRA**

Es un instrumento
puramente Africano.
Es una caja hueca
que tiene varias barras
de bambú o de metal que
sobre salen. Este
instrumento se toca
con los dedos gordos
y tiene un sonido
agudo y penetrante.



cut (corta)

Encuentra

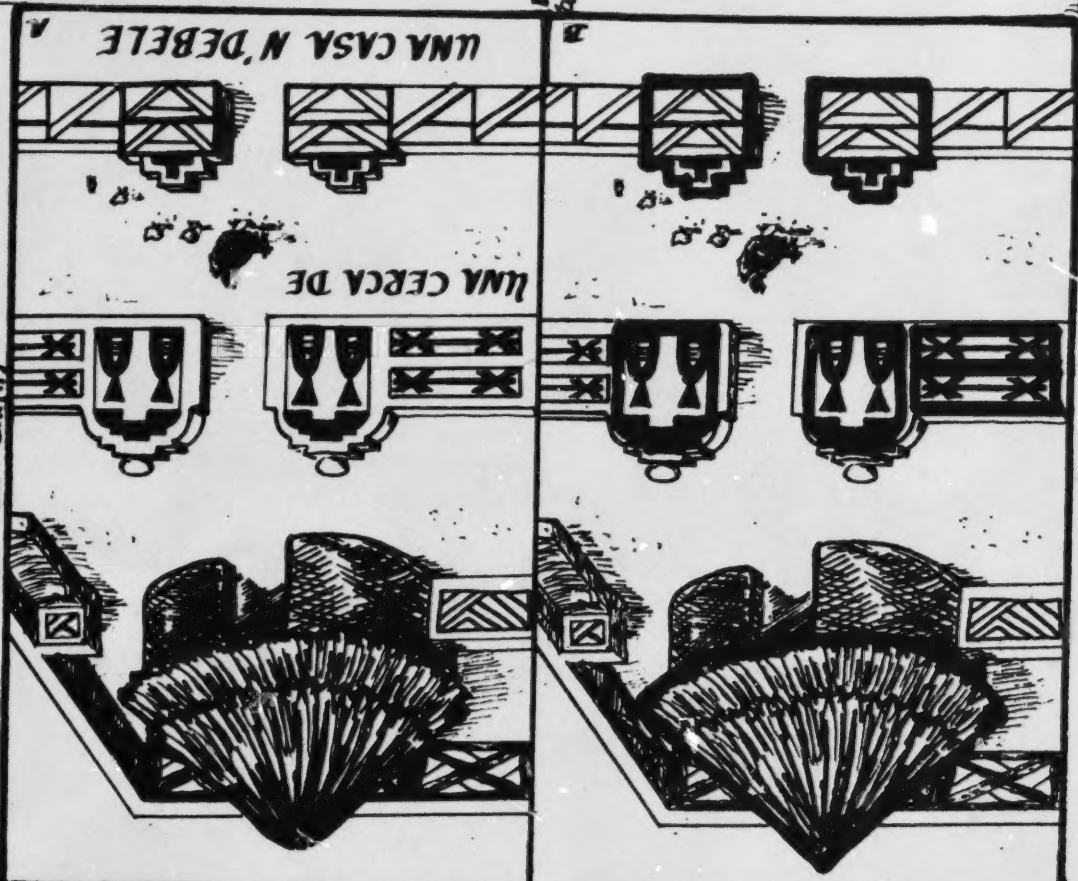
5 triángulos.

962

(dobla)
FoldFold
(dobla)

FOLD
(DOBLA)

CUT (CORTA)



*Diseño en una cerca
de una casa N'Debele.*

*Las casas de los
N'Debeles tienen cercas
muy pintorescas. Las
esposas se ocupan de
pintarlas para hacer
sus casas más bonitas.*

*¿Cuántas figuras
simétricas puedes
encontrar?*

FOLD
(DOBLA)

ESCUDO
"SHIELD"



FOLD
(Doble)

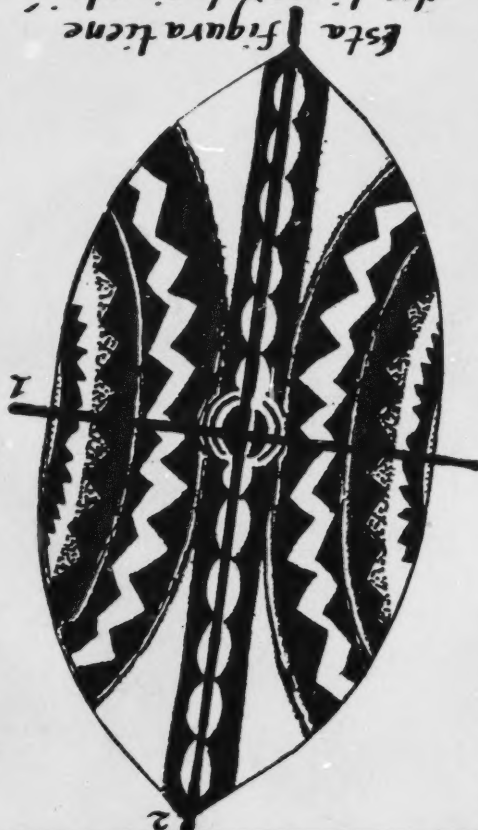
CUT (CORTA)

- Escudo -

Los escudos eran hechos en diferentes tamaños y formas. Algunos eran hechos muy pequeños para usarse en bailes rituales. Cada tribu variaba la forma de los escudos.

965

Esta figura tiene dos líneas de simetría



FOLD
(Doble)

FOLD
(over)

- Pantalla de Hombre -

Los hombres
de la tribu Masai
usaban toda clase
de prendas. Esta
es solo una de ellas.

¿ Cuántos
círculos tiene
esta pantalla?

FOLD
(over)



FOLD
(over)



485

FOLD
(over)

FOLD
(Doble)

CUT (Corta)



- Careta Africana -

Las caretas eran talladas en madera y se usaban la mayor parte de las veces en sus ceremonias religiosas. Eran usadas solo por hombres.

CUT (Corta)

FOLD
(Doble)



¿ Cuántos polígonos hay en esta máscara?

Definition of polygon:

Closed figure of three or more line segments.

FOLD
(Doble)

CUT (CUTTING)

FOLD (FOLDING)

CUT (CUTTING)

Chi Wara'

Este antilope tallado en madera se usaba en la cabeza durante ceremonias que aseguraban buena cosecha.

CHI
WARA



Definition of congruent:

Same size and shape matching exactly. Lo mismo

Encuentra
dos figuras
congruentes.

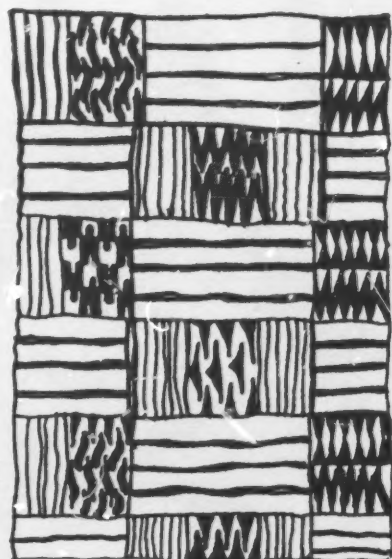


cut (orta)

Fold
(doblar)

cut (orta)

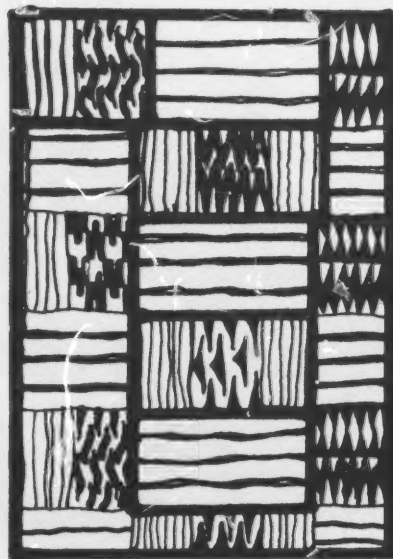
A.

TEJIDO
AFRICANO

Tejido Africano

Hoy en día todavía
en Ghana usan sus
manos y pies para
tejer preciosos
patrones.

B.



Encuentra

5 rectángulos.



Tallado usado
para apoyar
el cuello.

FOLD
(DOUBLE)

CUT
(LEFT)



CUT
(RIGHT)



FOLD
(DOUBLE)

B

CUT
(LEFT)

FOLD
(DOUBLE)

CUT
(RIGHT)

489

Encuentra
5 polígonos.

970

FOLD
(DOUBLE)

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VIII: AFRICA

SKILL I: Finding Perimeter.

VOCABULARY:

distance
polygon
perimeter

"distancia"
"polígono"
"perimetro"

FIRST
ACTIVITY
FOR
SKILL I

Try to find a story about Anansi, the spider. There are several at children's libraries under African folktales. Read one to the students to familiarize them with the character.

Have Anansi walk on the paths and ask how far Anansi walked. Measure in inches or centimeters.

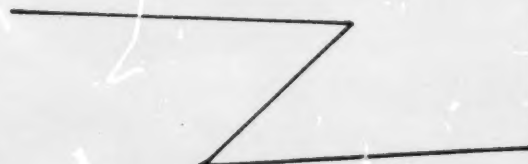


_____ CM

FIRST
ACTIVITY
FOR
SKILL I
(CONTINUED)



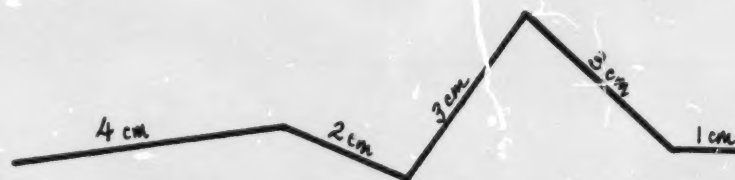
_____ CM



_____ CM

Explain that you should measure each segment separately and add the measurements.

ie.

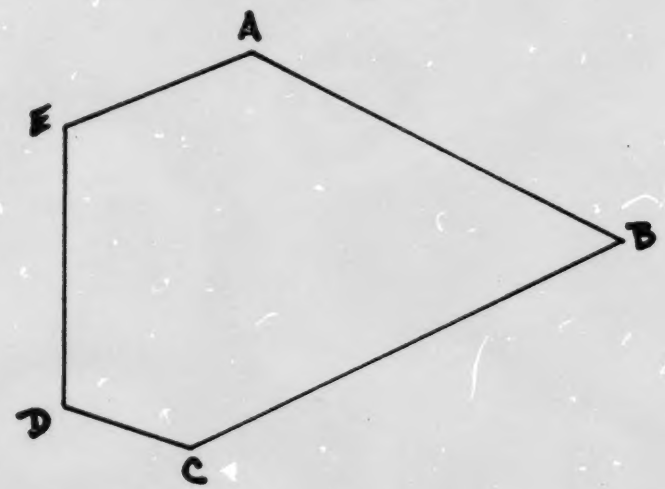


4 CM
2 CM
3 CM
3 CM
+ 1 CM

13 CM

FIRST
ACTIVITY
FOR
SKILL I
(CONTINUED)

When finding the distance around a closed figure measure each side first then add.



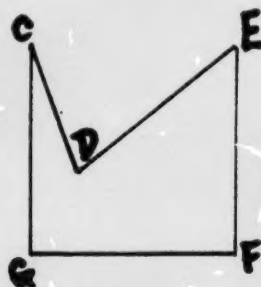
AB	_____	CM
BC	_____	CM
CD	_____	CM
DE	_____	CM
EA	_____	CM
	+	_____

Give more examples.

ex

SECOND
ACTIVITY
FOR
SKILL I

Mide la distancia que caminaría Anansi si le diera la vuelta entera a cada figura.



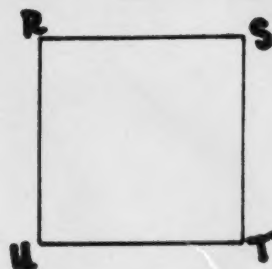
_____ CM

2.



_____ CM

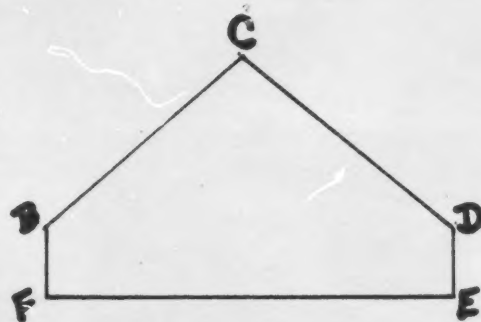
3.



_____ CM

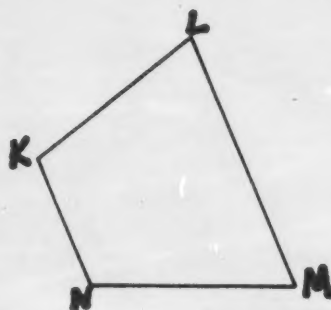
SECOND
ACTIVITY
FOR
SKILL I
(CONTINUED)

4.



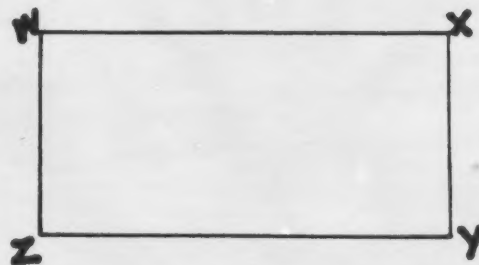
_____ CM

5.



_____ CM

6.



_____ CM



THIRD
ACTIVITY
FOR
SKILL I

Explain that the distance around a closed figure is called the perimeter.

Give students worksheets asking to find the perimeter of different polygons.

981

982

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VIII: AFRICA

SKILL J: Identifying shapes in space.

VOCABULARY:

sphere
cylinder
cone
cube

"esfera"
"cilindro"
"cono"
"cubo"

FIRST
ACTIVITY
FOR
SKILL J

Show examples of spheres and tell students what they are. Ask them if the sphere can be related to any of the shapes studied until now. (CIRCLE)

Have a Sphere Hunt in the classroom or outside to see how many can be found.

After the Sphere Hunt use the objects found to prepare a Sphere Display. Leave it up to the students to find new examples of spheres.



SECOND
ACTIVITY
FOR
SKILL J

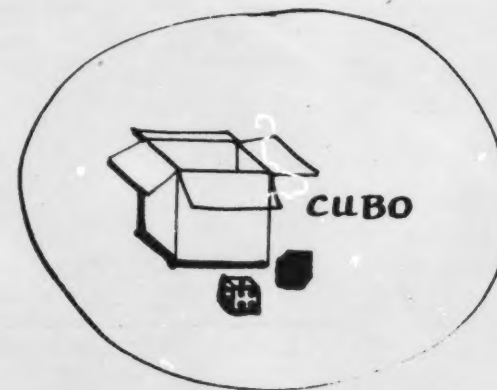
Follow the same steps for the cylinder, the cone and the cube.

1. Example of the solid figure.
2. Hunt for things that are shaped like it.
3. Make a display.

Compare figures and discuss.



985



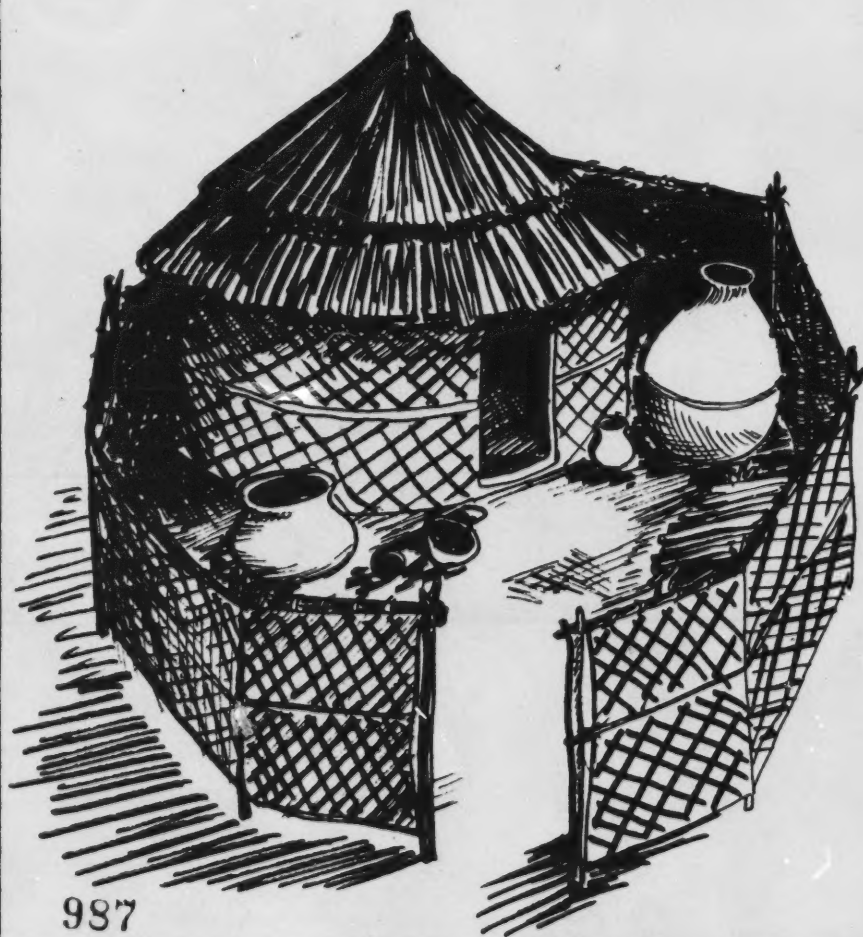
986

MATHEMATICS CURRICULUM FOR GRADE THREE

UNIT VIII: AFRICA

THIRD ACTIVITY FOR SKILL J

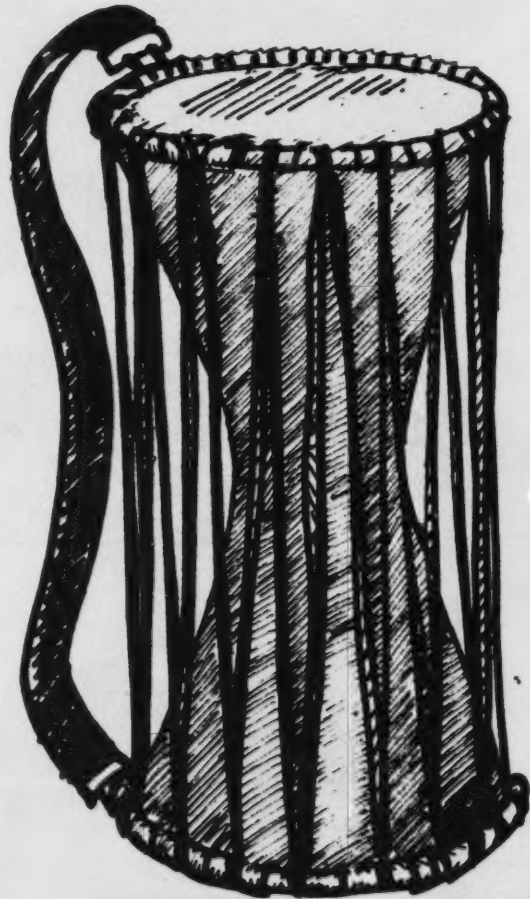
Give each student a copy of each drawing and ask them to color each three dimensional shape found in them.



Una casa en los alrededores del Lago Chad.



Una peineta del Congo.



989

El tambor doble de Nigeria.



990

Una muñeca de la tribu Ashanti (Akua-ba).



Una casa de los Kikuyus de Kenya.

991



Adornos de la tribu de los Masai.

992

MATHEMATICS CURRICULUM FOR GRADE THREE

I N D E X

NUMERATION

	<u>UNIT</u>	<u>SKILL</u>	<u>PAGE</u>
Using and interpreting = and $\neq$	I	C	7
Using and interpreting < and >	I	D	9
Ordinal numbers 1 to 10	I	J	44
Understanding and using numberline	II	B	58
Counting numbers 1 to 50	I	B	5
Reading and writing 1 to 50	I	B	5
Counting, reading and writing numbers 1 to 100	II	A	52
Counting, reading and writing numbers 1 to 100 by 10's	II	C	65
Counting, reading and writing numbers 1 to 100 by 5's	II	D	69
Counting by 2's to 100	III	A	131
Odd and even numbers - Review	VIII	A	437
Counting from 1 to 1000	III	B	134
Reading word names - one to one hundred by hundreds to one thousand	IV	A	191
Writing word names - one to thirty by tens to one hundred	IV	B	197
Place value	III	C	137
Recognizing and Reading Roman Numerals I to XII	IV	D	213

ADDITION OF WHOLE NUMBERS

	<u>UNIT</u>	<u>SKILL</u>	<u>PAGE</u>
Recalling addition (and subtraction facts to 18	II	E	73
Commutative property of addition, understanding and using	II	F	101
Associative property of addition, understanding and using	II	H	106
Column addition with three addends, understanding and using	II	H	116
Story problems with addition (or subtraction)	II	J	125
Column addition with no regrouping	III	D	151
Adding multiples of 10	III	E	156
Adding a two digit number to a one digit number with no regrouping	III	F	159
Adding two digit numbers with no regrouping	III	G	163
Adding three digit numbers with no regrouping	III	H	168
Relating addition to subtraction	III	I	173
Regrouping once in addition (two to four digits)	V	A	281
Regrouping twice in addition	VI	B	355
Rounding one and two digit numbers to the nearest ten.	VI	A	350

SUBTRACTION OF WHOLE NUMBERS

MULTIPLICATION

	<u>UNIT</u>	<u>SKILL</u>	<u>PAGE</u>		<u>UNIT</u>	<u>SKILL</u>	<u>PAGE</u>
Recalling subtraction facts to 18 (and addition)	II	E	73	Recognizing multiplication terms and symbols	IV	E	217
Computing subtraction facts to 18	II	I	119	Converting horizontal multiplication sentence to vertical form	VII	E	412
Story problems using simple subtraction	II	J	125	Multiplication as repeated addition	IV	F	220
Relating addition to subtraction	III	I	173	Representing multiplication problems in arrays	IV	G	225
Subtracting a one digit number from a two digit number with no regrouping	III	J	178	Commutative property of multiplication	IV	H	231
Subtracting a two digit number from a two digit number with no regrouping	III	K	181	Multiplication and division as inverse operations	IV	L	249
Subtracting three or four digit numbers with no regrouping	III	L	185	Review of above	VI	D	367
Division as repeated subtraction	IV	J	239	Multiplication and division through tables of five	IV	M	257
Regrouping once in subtraction (two to three digits)	V	B	295	Memorization of tables of five	VI	F	381
Regrouping twice in subtraction (no zero in tens place)	VI	C	360	Multiplication and division with tables of six through nine	VI	E	373
				Multiplying two digits (multiples of ten) by one digit with no regrouping	VII	E	412
				Multiplying two digits by one digit with no regrouping	VII	F	419
				Multiplying three digits by one digit with no regrouping	VII	G	426
				Using multiplication tables to compute quotients	VIII	H	432

I N D E X (CONTINUED)

DIVISION

TIME

	<u>UNIT</u>	<u>SKILL</u>	<u>PAGE</u>
Recognizing terms and symbols	IV	I	236
Division as repeated subtraction	IV	J	239
Representing division problems in arrays	IV	K	245
Multiplication and division as inverse operations	IV	L	249
Review of above	VI	D	367
Multiplication and division through tables of five	IV	M	257
Multiplication and division with tables of six through nine	VI	E	373
Computing quotients by using multiplication (tables through nine)	VII	H	432

Telling time
(to the nearest hour,
half-hour,
five minute)

<u>UNIT</u>	<u>SKILL</u>	<u>PAGE</u>
IV	C	201
IV	C	203
IV	C	205
IV	C	207

LINEAR MEASUREMENT

GEOMETRY

	<u>UNIT</u>	<u>SKILL</u>	<u>PAGE</u>
Reviewing basic geometric shapes (circle, triangle, square, rectangle)	I	A	2
Identifying terms and geometric elements (point, line segment, curves, congruent, polygon)	VIII	G	460
Identifying shapes in a plane (polygon, rectangle, square, triangle, line segments, sides, angles, right angle, opposite sides, symmetry, circle, center)	VIII	H	467
Finding perimeter	VIII	I	490
Identifying shapes in space (sphere, cylinder, cone, cube)	VIII	J	496

Measuring using inches

Measuring using feet and inches

Measuring using yards, feet, inches

Measuring using centimeters, meters

Scale Measurement using maps with
inches, feet, yards, miles or
centimeters, meters, kilometers

<u>UNIT</u>	<u>SKILL</u>	<u>PAGE</u>
I	E	20
I	F	24
I	G	30
I	H	32
I	I	39

LIQUID MEASUREMENT

Measuring liquids (U.S.) cup, pint,
quart, gallon

Measuring liquids (metric) liter

<u>UNIT</u>	<u>SKILL</u>	<u>PAGE</u>
VIII	B	438
VIII	C	445

WEIGHT MEASUREMENT

	<u>UNIT</u>	<u>SKILL</u>	<u>PAGE</u>
Measuring weight (U.S.) ounce, pound	VIII	D	448
Measuring weight (metric) gram, kilo	VIII	E	454
Determining appropriate unit and tool of measure	VIII	F	457

MONEY

	<u>UNIT</u>	<u>SKILL</u>	<u>PAGE</u>
Identifying value of U.S. coins (1c, 5c, 10c, 25c, 50c) and combining coins, computing their sums	V	C	310
Making change to \$1.00	V	D	325
Writing money using dollar sign (\$) and decimal notation (.) to a total sum of \$10.00	V	E	332
Applying money skills in a Japanese-American Market Day activity	V	F	338

CHARTS, GRAPHS

	<u>UNIT</u>	<u>SKILL</u>	<u>PAGE</u>
Using scale drawings (map reading)	I	I	39
Interpreting simple graphs	VI	G	382

TESTING

Filling in answer forms for standardized tests in mathematics

<u>UNIT</u>	<u>SKILL</u>	<u>PAGE</u>
VII	I	434

FRACTIONS

Understanding terms: fraction, numerator denominator with their corresponding parts

<u>UNIT</u>	<u>SKILL</u>	<u>PAGE</u>
VII	A	391

Understanding the congruency of parts in a fraction

VII	A	395
-----	---	-----

Identifying parts of a whole in following fractions: halves, thirds, fourths, fifths, sixths, eighths and tenths

VII	B	397
-----	---	-----

Identifying parts of a set in fractions

VII	C	405
-----	---	-----

Compare equivalent fractions with pictured model

VII	D	410
-----	---	-----

SOCIAL STUDIES THEMES

	<u>UNIT</u>		<u>UNIT</u>
Africa	VIII	Eskimos	VI
American Indians	VII	Europe	IV
Asia	V	Latin America	III
Connecticut	I	Puerto Rico	II